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# GLEANINGS

## IN BEE CULTURE

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# GLEANNINGS

A JOURNAL DEVOTED TO BEES AND HOME INTERESTS.

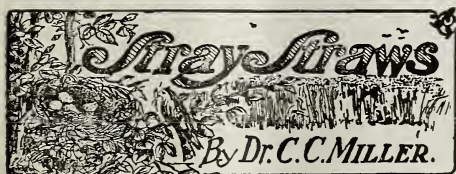
## BEE CULTURE

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Vol. XXXIII.

AUGUST 15, 1905.

No. 16



EIGHT FEET 2½ inches high. That's how high a stalk of sweet clover has grown just north of the house.

C. E. WOODWARD is less worried, if possible, than I am, as to the disappearance of basswood lumber. He says in *Review*: "I have never yet seen a one-piece section that I considered worth putting the foundation into. The four-piece section, made from white poplar, is the only first-class section on the market." Thanks, Bro. Woodward.

A SWARM issued from No. 18. I said, "That's strange; the queen is caged in No. 18; are they swarming with the queen in the cage?" But I found a clipped queen on the ground in front of the hive. Then I said, "How could that queen get out of the cage?" Looking in the hive I found the cage all right and the queen still in it. A queen from some other colony had evidently entered, and agreed to elope with the colony. Precisely the same thing occurred at No. 60, and on the same day. Bees are queer. [This only emphasizes what I have said elsewhere, that queens sometimes make mistakes by going into the wrong hive.—ED.]

C. H. DIBBERN thinks from my *Straw*, p. 755, that I think his trap a failure. That's where you're out, friend Dibbern. The work of the trap was to catch that queen, and it caught her. The regular thing would have been to hive the swarm, and the trap had the queen caught all right for that. But I didn't want to hive the swarm. All I wanted of the trap was to tell me the colony had swarmed. It did that, saving me the trouble of looking for queen-cells every ten days up to the time the colony swarmed. I left the colony till it was convenient for me to have a controversy with it about the mat-

ter of swarming; and I suppose in most cases the queen would have remained in the trap.

FOR ONCE I wish I hadn't put on so many supers. It will be all right if clover takes a fresh spurt, but otherwise there will be an undesirable number of unfinished sections. Yet the promise was so great, and the cut-off so sudden, that I hardly blame myself. Suspect I'd do the same thing again under like conditions. [At one of our outyards I put in a lot of frames of foundation to give the bees room, and now I wish I hadn't. The honey-flow that seemed to be so strong was followed by chilly weather, and especially by cool nights. Some of the brood chilled. In other years these nuclei would have suffered from want of room, with precisely the same conditions that made it seem necessary to put in foundation this year.—ED.]

REPLYING to your queries, p. 805, Mr. Editor, this season is better than last in this locality, and better than the average season. Nothing like so good, however, as it promised. Up to July 20 it was great; then suddenly robbers began to trouble, although plenty of clover bloom was in sight. Gradually the whiteness of clover faded out, although there was no drouth. But it has brightened up again, and Aug. 7 there is a fine show of clover. Whether the bees get any thing from it remains to be seen; but, like a genuine bee-keeper, I'm hoping.

*Twelve hours later.*—Been to work at the bees since writing the foregoing, and there's no question about the fresh start. No trouble from robbers, and "honey shakes"—that is, when you shake the bees off a comb a flood of nectar flies out. [This is the kind of reports we have been getting from other bee-keepers. It looks decidedly as if there would be belated crops in many sections, when, early in the season, it was estimated they would be without honey.—ED.]

"THE SUNDAY closing law has finally triumphed in Missouri. St. Louis police put the lid on good and tight in St. Louis Co. yesterday."—Chicago daily, Aug. 7.—"That's nothing to do with bee-keeping?" Yes, it



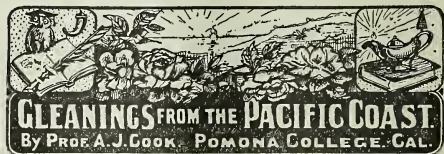
has. If all the saloons of the land were closed on Sunday, it would mean many a taste of honey in poor families whose heads now spend much of their earnings at the Sunday saloon. [The wave of reform is starting in various cities, and not a few thanks are due to that great good man, Gov. Folk, for starting reform in St. Louis, even if he did veto the foul-brood bill of the bee-keepers. Just now there is a growing feeling against bossism and boss rule in Ohio. The bosses have had control of this State for many years; and the good people are now looking to see if they can not emancipate themselves from the rule of boss Cox, of Cincinnati. We are looking with anxious eyes on the verdict of next November.—ED.]

REV. J. G. BAUMGAERTNER is puzzled. Editor Root, page 643, preaches strongly the doctrine of warm supers. A Straw, p. 756, estimates the gain more than the loss when a current of air is allowed to pass through the hive by having "an opening at top at back end of hive." How to reconcile the two. Don't need reconciling, Bro. B.; they are two separate things, both good. One is warm supers, the other is a well-ventilated brood-chamber. Please understand that I don't ventilate by shoving forward the cover, for that would cool the supers as well as the brood-nest. The ventilation is made by shoving forward the lowest super. There is loss from that in cooling off the row of sections next the opening, making the work there slower, and a gain in cooling the brood-nest; and I believe the gain greater than the loss. I even up matters sometimes by changing the super end for end after work has started in it, but it doesn't make as even work in the super as without the ventilation.

YE EDITOR thinks I have no good proof to sustain my fears that so much caging of cells and queens may have bad results. I thought I had some such proof in former days, but lately the proofs seem to be going against my notions. By accident I left two virgins caged 16 days. Instead of killing them at once, I thought I'd see how they would turn out, so uncaged them. Five days later I found them laying finely. It seems to me that, if they had proper ideas of self-respect, they ought to have laid very sparingly, if at all. With many misgivings I've been trying the dual plan of introducing virgins; and, so far from getting any clear proofs that it's all wrong, I'm afraid I'll have to own up that it's a fine thing. [We have been working the dual plan for two seasons now, and for the last month we have been practicing it in baby nuclei with entire success. A virgin queen more than one day old usually requires on the average, in our experience, about four days of caging before the bees will accept her. If my theory is correct (that scent is the controlling factor in the matter), then if we put two queens in at the same time, they can both be acquiring that same scent. When the plan is carried out in its entirety it vir-

tually takes only two days to get actual results, although as a matter of fact the queen has been acquiring the scent, or whatever it is, for four days.—ED.]

I WANT to endorse some of A. I. Root's notions about making extra work for the women, especially in the matter of cooking. It's outrageous the amount of extra work they do by way of getting up extra dishes to tempt us to eat more than is good for us. Almost any physician will say that, if the variety of dishes were cut in two, and the amount of food we gobble also bisected, we'd be a healthier and a happier people. Then the dishwashing—I confess to the weakness of having an uncomfortable feeling when three teaspoons are put at my plate when only one is needed. Generally, though, I use only the one. Keep it up, Bro. Root. [Once for a week or so, when my wife was without help and she herself was not very well, I was asked to help wipe the dishes after the evening meal. It was not long before I began to ask the question, "Why not get along with one plate, one spoon, and one knife and fork? What is the use of having a great big butter and bone dish? What is the use of having an extra pie-dish?" And so I went on. I had never thought of these things until I had to wipe the dishes. It makes a great deal of difference whose ox is gored, especially if that ox is the *pater familias*.—ED.]



#### SAGE HONEY.

A subscriber from La Crescenta, California, sends a little friendly criticism of my article in GLEANINGS for June 15. He says that they have thousands of acres of white sage which, at the date of his writing, June 30, were in full bloom and were being visited by the bees. He hopes that the present year will be a good one, but adds that the white sage is not much to be depended upon. He comments upon the excellence of both black and white sage honey. The black sage, he says, never fails them if the rains are abundant. He says that bee-keepers in his vicinity are of the opinion that black sage furnishes ten pounds of honey to white sage's one, although there is a good deal more white sage than black in his neighborhood. He voices the general experience of Southern California in the statement that because of the cool cloudy weather in May and June the bees did but little work. Up to the time of the date of his letter, June 30, he had an average of fifty pounds per colony and was hoping much from the white sage, which was attracting the bees in great numbers at that

time. I think Mr. S.'s valuation of the sages is not exceptional. I know Mr. Harbison always gave black sage much higher valuation than he did white. I have known many others of like opinion. I think one reason, perhaps, for this comes from the fact that the white sage is more partial to the lower ground, while the black sage pushes up into the canyons and thus is likely to find moisture, while possibly the white sage lacks this necessary adjunct for honey secretion. Is it not possible then that both of these plants, with suitable weather and soil conditions, will yield invariably an abundance of honey, though in case of scant rainfall the white will fail utterly, while the black may give a fairly good harvest simply because it grows in a region where moisture is sufficient to insure nectar secretion? Were I to locate an apiary in Southern California, I should wish to find both these plants in profusion, and for reasons given above; as also from the fact of its longer period of bloom I should prefer to have the white sage omitted rather than the black. Perhaps the reason that the black sage blooms earlier than the white is in part due to its location. With us the white sage grows on the flat mesa lands; and, while the black sage is not omitted in this locality, it is much more abundant on the sunny slopes of the canyons where the moisture is more in evidence.

E. E. R., Santa Barbara, Cal., asks for information regarding the sages. The accepted name now for the white sage, of which he sent a sample, is *Ramona polystachia*. It was formerly *Audibertia*. The black sage, I suppose named because of its darker color, perhaps because the heads of the flowers turn dark with age, does not grow so high as the white, has a shorter leaf, and looks very different. The flowers are in heads, while in the case of the white sage they are in a long raceme. I suppose that from this head of flowers it also takes the name of ball sage. Mr. R. also sent another sage the color of the white sage, which also had the flowers in balls. The specimen was too meager for determination. There are several sages in California, all valuable for honey, but the two species referred to above are by far the most common and important.

#### DERMESTES LARDARIUS.

As I am away from home I did not receive the specimens from Mr. N. D. West, Middleburg, N. Y.; but from your expression, "little striped worms," and also from the description given by Mr. West, I have little doubt that the insects in question are the common museum pest, *Dermestes lardarius*. For a figure of this beetle, I refer our readers to my "Bee-keeper's Guide." It is a small gray beetle with a buff band crossing the front part of the wing-covers. The little banded hairy grubs, or larvæ, ringed with lighter and darker brown, feed upon dead animals; and so the bee-hive in spring, and hives where the bees have all

died, furnish a very picnic for these insects. I have often found the beetles and grubs within the hives in such cases. I can readily understand how Mr. West, in his great apiary of a thousand colonies, might, after a severe winter, find these grubs in surprising numbers. As they feed only upon dead animals, I do not think that their presence in the apiary need excite alarm or even disgust. It is quite otherwise in our museums where often our insect cabinets receive irreparable damages from the ravages of this pest. In such cases it is killed by the use of bisulphide of carbon, and is kept away by way of aid of naphtholine or moth-balls. It may interest our readers to know that the so-called "buffalo carpet-moth," which is really no moth at all, but a little beetle—an insect which plays fearful havoc in carpets and other woolen fabrics, belongs to the same family, and so is a close relative of this museum pest.

#### CARBOLIC ACID AS A DISINFECTANT.

Subscriber, Greencastle, Ind., refers to my "Bee-keeper's Guide," page 481, where I state that R. L. Taylor keeps foul brood in check by the free use of carbolic acid. He asks what a free use is, and wishes to know if the hives and combs can be disinfected by this substance, using an ordinary hand sprayer. He inquires further if combs sprayed with carbolic acid would be injured, and if formaldehyde, bisulphide of carbon, or copper sulphate could be added to the carbolic acid with profit.

I doubt if it pays to use carbolic acid in case of foul brood in the apiary except as a wash for the hands and to disinfect the tools. While visiting Mr. Taylor I noticed he washed his hands in a rather strong solution after working with any hive before he commenced working with another. I do not believe any of these substances can be depended upon to cure foul brood. The common method given in my book and all our works on apiculture is reliable and satisfactory. The same can not be said of carbolic or salicylic acid. But we should use the carbolic acid freely as a wash for our hands and as a disinfectant to prevent the spread of the disease. If I may be pardoned for making the statement here, I will say that no one can be too careful in any work that has to do with these germ diseases. The little micro-organisms are so insidious, and multiply with such startling rapidity, that disinfection, italicized, should ever be the motto. In case of pruning pear-trees to eradicate pear-blight, sufficient attention is rarely given to this matter of disinfection. The free use of a sponge, wet with carbolic acid, at the end of the cut twig, and to wet saw, knife, or shears often explains why one person meets with success and another with failure. It will be remembered that Mr. Taylor kept foul brood in his apiary as a sort of plaything, or, perhaps, I had better say, as an opportunity for study, and felt safe in doing so. Had he been less intent in the



use of disinfectants this would have been quite otherwise. I know a very expert surgeon, and I once asked him the secret of his great success. He gave a first place to his generous use of antiseptics.



WHILE the subject of outdoor feeding is old to some of the veterans, to many of our newer readers it is a new one. I believe that we have blundered on to some ideas that may not have been exploited before in the bee journals in reference to feeding in the open air, especially when it is practiced with almost sole reference to stopping robbing when the hives are constantly opened.

#### A PROFITABLE BUSINESS IN BUYING UP SLUMGUM.

SOME bee-keepers are making a business of buying up slumgum in large and small lots. There are many other bee-keepers who delude themselves by thinking they have got all of their wax out of the slumgum. The delusion is costing all such a good many dollars. An intelligent use of the wax-press will save these dollars that at present go to the fellows who have learned the value in slumgum. When one can make a very good press out of an old half-barrel and a 12-ft. 4x4 hard-wood lever, he is penny wise and pound foolish to give away these "dollars." Wax *always* has a good cash value.

#### THOSE TISSUE-PAPER SOUVENIR BEES.

IN response to a notice in the last issue of GLEANINGS, of the beautiful souvenir of the bee made of tissue paper, Dr. E. F. Phillips, of the Department of Agriculture, in charge of the Division of Apiculture, reports that he has received numerous inquiries concerning and orders for these souvenirs. If the reader will refer again to the editorial in question, he will see that no statement is made by us to the effect that the bees can be obtained of the Department, although that might be the natural inference. When I wrote the item I left the address of the concern which has them for sale in Washington blank, expecting to put in the street number before that issue went to press. Dr. Phillips writes that the rules of the Department would not permit of his accepting any orders, and he has forwarded all inquiries here, which we will take care of. Others may obtain them from L. Cohen & Co., 630 Pa. Ave., N. W., Washington, D. C., by sending 7c postage.

#### CAUCASIAN BEES AT MEDINA.

ONE of our correspondents desires us "to put in the next issue of GLEANINGS a description of the Caucasian bees." We have only a few colonies of them from imported queens, and so far are not able to form a correct opinion of them. In one colony the bees are almost entirely Caucasian. They are of a grayish black, and the fuzz-rings are quite pronounced. They are different from the ordinary black bees of this country—enough so, so that I think one could, without very much difficulty, distinguish one from the other. They differ, also, from the Carniolans. The black of the abdomens of the latter is of a bluish cast, while on the Caucasians it is of a grayish black. Our Caucasians are all very quiet on the combs, and, so far as we can see, they are very gentle. They are too young yet to show us their fighting propensities, if they have any. Within a month or so we shall be able to give a more complete account of their disposition, when the weather turns cool and propolis is hard.

In this issue will be found a good description, by Dr. Lyon, of the Caucasian bee in the Government apiary.

#### SELLING AT TOO LOW PRICES IN LOCAL MARKETS; A WORD TO THE WISE AND THE OTHERWISE.

FOR several years we have urged bee-keepers to take advantage of the early demand for comb honey, especially in the East, which advice we still give. There is, however, an important point to which too little attention is paid. We have found in numerous instances successful bee-keepers in a locality where there is a good demand, but comparatively little honey produced, not aware of the opportunities of their market, supplying their grocers in small lots in the early season at from 1 to 3 cts. per pound less than the regular market at that time in the nearest large city. These bee-keepers do not seem to consider that they can obtain from 16 to 18 cts. for their crop when sold early in small lots, locally, as easily as 12 to 15 cts. We urge the necessity of bee-keepers all over the country, when selling in small lots, to see to it that they do not sell below the market.

When there are a good many producers, as in many localities in New York, Michigan, and Wisconsin, it is true that the local stores will not pay a high price, for the reason that there is so much offered, and it is unnecessary for them to do it. On the other hand, there are hundreds of places where only a small amount is produced, and the bee-keepers of these places should be careful early in the season not to sell at a low price, thereby spoiling the market for an entire season. A great deal depends on the locality and the amount produced; but if each bee-keeper is careful, when selling in small lots, the general tone of the market will be very much improved.



## HOW TO MAKE AN OUTDOOR FEEDER.

ELSEWHERE in this department the advantages of outdoor feeding are explained; but no description is given as to how these feeders are made. Fortunately their construction is very simple. A two or five gallon crock may be inverted on a board having saw-cuts parallel with and across the grain of the board, said cuts being  $\frac{1}{2}$  inch deep, and terminating within an inch of each side and end. But a far better and cheaper arrangement is a common second-hand 60-lb. square can. Scald it out with boiling water to make sure that no traces of foul brood remain, then punch the top of it full of small holes from  $\frac{1}{4}$  to  $\frac{3}{8}$  inch apart. The perforations may be made with a common wire nail and should be about  $\frac{1}{16}$  in diameter. Fill this can with syrup, put on the screw cap, and invert it over a pair of blocks in such a way that the bees can get free access to the perforated top, now the bottom.

If the apiary is a large one, it may require two or three of these cans set out at a time. The plan that we are at present using is to have three cans inverted over two horizontal bars resting on two hives. These bars should be spaced to a distance of a little less than the width of the can top, and be long enough to accommodate two or three cans at a time. A little loose hay or grass should then be strewn under the cans, and over this a piece of cheese-cloth. The bees will cluster in festoons under the bottom side of the feeder, every now and then dropping down in bunches. The object of this loose hay or grass and cheese-cloth is to cushion the fall. While this may seem like going to extremes, yet when bees are doing this all day it is advisable to save them as much of a shock as possible.

The objection to the grooved board and the crock is that the bees struggle and scramble to such an extent they wear the fuzz-rings all off their bodies, and in the scramble also they mutilate and tear each other's wings to a greater or less extent. The inverted square can with its perforations, because of its smooth slippery surface does not give the bees a chance to struggle against each other. A bee will no more than get its tongue into one of the openings than perhaps half a dozen will suck at the same hole. In a few seconds a bunch will be formed that will drop down. Of course, they will fly back and repeat the operation.

Now, right here some may think the grooved board is better because a bee could stick its tongue into the syrup and suck to its fill. In order to bring about the conditions of an artificial honey-flow the bees should not be allowed to fill up too fast. For that reason the inverted can brings about a condition that requires the bees to *spend considerable time in filling up*, with the result that a small amount of syrup, comparatively, will keep a big horde busy all day.

Some one else, I do not remember who, recommended taking an ordinary extractor-can and filling it full of syrup. The top, of course, should be covered. Under the hon-

ey-gate is put one end of a V-shaped trough, made of two rough 12-foot boards about 4 inches wide. One end of this trough is a little lower than the one next to the honey-gate. The honey-gate is now opened *just enough* to allow a fine stream to reach the further end of the trough *when it is covered with bees*. But this arrangement would have to be watched almost constantly to prevent syrup running too fast and wasting, or going too slow, resulting in that elbow struggle which should be avoided. Although not having tried it, my impression is that there would not be much chance for the bees to struggle. But don't you see the bees would get the feed too fast, and in one day's time would take up a big canful of syrup?

#### OUTDOOR FEEDING; AN EFFECTUAL REMEDY FOR PREVENTING ROBBERS OR PILFERERS WHILE ONE IS WORKING OVER THE HIVES.

A YEAR ago we conducted some experiments in outdoor feeding, and established the fact that, so far as we were concerned, we could produce the conditions of an artificial honey-flow so that ordinary queen-rearing operations could go on as successfully, almost, as during a natural honey-flow. It is a well-known fact to the queen-breeders that getting cells accepted, virgins mated, etc., come almost to a standstill as soon as the honey-flow stops. The bees, so far from feeling the condition of prosperity, are seized with a sort of panic, kill off the drones, destroy cells, refuse to build out others, and for a few days, at least, there is a lull. They will recover somewhat, it is true; but the queens reared during a dearth of honey are inferior in every way to the queens reared during a honey-flow; and, what is more, they cost the breeder two or three times as much to produce. Nor is this all. Brood-rearing is curtailed, and the bees pursue a policy of severe retrenchment in order that they may save such stores as they have obtained.

A year ago we began feeding outdoors — cautiously at first; and then as we saw that it *stopped* robbing rather than inducing it, we went at it boldly. This year a honey-flow from red and peavine clover has hung on so that we have not had to feed as early as formerly; but when robbers began to bother, then we start the outdoor feeder, when, presto! all is serene.

#### THE PHILOSOPHY OF OUTDOOR FEEDING.

As not every one has made the outdoor method a success, it is, perhaps, not amiss to explain the philosophy of it. By understanding the principles involved the reader may discover the cause or causes of failure. The average bee-keeper feels very cautious about exposing sweets to bees, as he knows that, when the honey-house door is left open, perchance exposing a lot of combs, that there will be a fearful uproar, cross bees following one even around into the streets. Well, then, if this be so how can one possi-

bly feed bees outdoors without bringing in precisely these conditions?

When you discover that your bees are robbing in your honey-house, what do you do? You close the door, and after a time let the imprisoned bees out and close the door tight again. The *sudden* interruption of the wholesale pilfering causes the bees to hunt high and low for more of the same goods. They will pounce on to every weak colony, and in some cases rob them all out entirely. It is the *sudden stopping* of the wholesale gathering of the sweets that starts up the fury of the bees. If the stoppage is *gradual* the situation is very different. Let us now take another case.

Suppose we scatter within a hundred yards of the apiary three or four dozen well-filled combs of honey. In the course of an hour the bees will discover them and pounce on them like a lot of little wolves. If you were to take all of these combs away from them before they have finished up the job, they would pounce on to every weak colony in the yard, hover around the doors and windows of the house, and, in fact, make themselves a general nuisance; but let those bees clean the combs out *gradually*, so that no more is left, and they will quiet down because they know that the sweets have been cleaned up and no more are to be had.

But the first day after the combs have been exposed, the bees will be all excited; and the first hour or two, especially after they have discovered the sweet, if you open up the hives you will probably be pestered by robbers. Why? Because not *all* the bees have learned the source of the honey. By some means of communication the fact is published to all the bees that a "find" has been made, but its exact location must be discovered by each bee. There will be a general hunt, and the first hive that is opened will be the object of their attack. And why not? They know that *some* bees are getting something good, and they naturally suppose that this is the source. Before we open another hive we will wait till the next day, and we may then expose some more combs. All the bees by that time have learned where the sweets are to be obtained, and they will go there and nowhere else.

I talked with that veteran bee-keeper, H. R. Boardman, who explained to me that he makes a regular practice, after the honey season, of exposing combs (which he desired to have cleaned up) hung on the siding of his buildings surrounding his bee-yards. He emphasized the importance of putting out *enough* combs so the bees could all help themselves.

Lest the reader may not have discovered it, I will explain that the two important requisites to outdoor feeding, in my mind, are, first, putting out a lot of feed in some definite place where the bees have learned to go to it, and keep up this feeding on every day when the hives were to be opened. The busybody robbers will all be drawn to the feeders, while you, in the mean time, can work your hives just as you would during

the honey-flow. These would-be robbers know that food is to be obtained, and they go right where they have been in the habit of getting it — that is, to the feeders, leaving the exposed combs unnoticed. Our boys have learned by experience that, when robbers get to be a nuisance, they can stop this annoying pilfering almost entirely by starting a large outdoor feeder going a few yards from the apiary. Just as soon as the bees have learned there is something to be had they will desert every thing for the feeder.

So far I have, perhaps, given the impression that outdoor feeding has the only merit of stopping robbing. This is a small part of the entire benefit. Brood-rearing is stimulated; syrup is stored in the combs preparatory to winter; and the result is, the colonies are in prime condition, and ready for the cold that follows. There is no fussing with small feeders, for the work can all be handled outdoors with two or three large feeders. Just before the feeding finally stops, the apiarist goes through his hives and finds which have enough, and which have enough and to spare. Sealed combs are taken from these latter and given to those which have not enough; and the result is that such a colony in the yard receives a supply sufficient for its needs.

#### HOW TO MAKE THE BEE-FEED ANTISEPTIC.

Another advantage of this outdoor feeding is that it permits one to put into the feed some antiseptic solution that will kill the germs of foul brood if that should develop in any one hive where the feed is carried by the bees. Ordinary carbolic acid is very good, but the bees dislike the smell of it, and often refuse to take the syrup. In Thos. Wm. Cowan's admirable work, "The Bee-keeper's Guidebook," the author recommends naphthol beta, which the bees do not dislike, and will take in the syrup readily. This can be purchased at any of the large drug houses, in ounce packages, for about 25 cents an ounce. To prepare the syrup, proceed as follows:

Break an ounce package into an eight-ounce bottle (or a half-pint measure, which is the same thing), and pour alcohol on to the powder, and, while pouring, stir until the powder is all dissolved. Into an ordinary can pour 140 lbs. of water; then add sugar gradually until there is an equal weight of sugar — that is, 140 lbs. If the sugar be poured in gradually, and the mixture stirred, there will be no need of applying heat; for in this proportion, half and half, the syrup will be perfectly clear if it be thoroughly stirred. When the syrup is nearly clear by the stirring, pour in the mixture of naphthol beta, and alcohol, and stir until it is entirely incorporated in the mixture. The naphthol beta is a powerful germicide, and is very cheap; and as it costs so little one can well afford to give his bees a feed that will resist foul brood. As this disease is more or less prevalent in the country, every bee-keeper, if he be compelled to feed, should give his bees an antiseptic food. In England a



naphthol-beta solution of this kind is used to cure foul brood direct.

#### STOPPING ROBBERS DURING EXTRACTING.

I have not tried it yet, but I am of the opinion that, when robbers are a nuisance during extracting time, after the honey-flow, if, two or three days previous to the extracting, a large feeder full of thinned-down honey be exposed, and that same feeder be kept going on the days of extracting, the bees will let the apiarist work right along unmolested, provided he is not too messy in his work. If the combs are exposed no longer than is necessary to get them out of the hives and into the comb-box, I will guarantee there will be no robbing. By giving bees, say, 50 or 100 lbs. of syrup or thinned-down honey one can extract, I think, a full day's extracting, aggregating anywhere from a hundred to several thousand pounds.

Of course, one should not feed any sugar syrup if there is any danger that it go into the extracting-combs and be taken again to the extractor.

#### A FAIR CRITIC; HERESIES; CUBICAL-SHAPED HIVES, ETC.

THE *Rural Bee-keeper*, edited by W. H. Putnam, and published at River Falls, Wis., is one of the newer bee papers that, for a youngster, is showing a great deal of strength and growth. The reason, I suspect, lies largely in the fact that its editor injects his own personality into its every page. But the feature that struck me more particularly is the fairness and liberality of its criticisms, especially when directed toward a brother-editor. In the last issue of the *Rural* Mr. Putnam quotes approvingly a portion of an editorial from these columns on page 68, on the subject of heresies in bee-keeping. He joins most heartily with me in the desire to have the truth, let the facts cut where they may; and then, referring to what I have said, he adds, "I firmly believe he is seeking for the facts." Bro. Putnam calls attention to a statement of mine recommending the Langstroth hive, first, because it is standard, and, secondarily, because it allows of a larger amount of super surface on top of the brood-nest than a perfect cube. Almost in the same breath I condemn a divisible brood-nest in the shape of a cube because a cube is not adapted to the production of comb honey. Right here Mr. Putnam takes issue with me strongly, and then draws attention to another editorial statement on page 527 of this journal in which I observe that the small baby nuclei were "standing these extremes even better than the old-fashioned Langstroth *two-frame nuclei*. The bees can keep a small cubical space warm much more readily than a flat oblong room with a great deal of surface exposed to the weather."

Commenting on the foregoing, Editor Putnam adds: "The above statement is correct, every word of it true; and this disproves the

statement that there is no advantage in the cubical over the flat oblong-shaped hive."

In the quotations made above from p. 527, as will be seen from the italicized portion, I was comparing a small baby nucleus, approaching a cube in shape, with a large flat slab-sided *two-frame Langstroth-sized nucleus*. The shapes of the two are so radically different that I was led to remark what I did in favor of the more compact hive, even though it were very much smaller; but, as a matter of fact, the baby nucleus under consideration has almost the exact proportion of the eight-frame Langstroth hive which I had been recommending. I was not comparing an exact cube with one having a shape somewhat approaching a cube, like the eight-frame Langstroth hive. My theory has always been that such a hive so nearly approaches the compact form of a cube that it has, to all intents and purposes, all the advantages without the disadvantages; but the two-frame Langstroth nucleus is so outlandish in shape, so badly proportioned, that, notwithstanding it is a great deal larger, the smaller box of bees is able to stand the strain of weather conditions better.

I admit that a perfect cube may be a little better for wintering; but when bees winter well in Langstroth hives the country over I don't know what more we could ask. The secret of good wintering is not so much in the *shape* as the relative *size* of the hive to the cluster. A small colony in a large cubical hive will not winter as well as a hive that can be contracted to the size of the cluster no matter what its shape.

#### WHAT HAS THE HARVEST BEEN?

CONDITIONS for the clover belt, including the Northern States as far West as Minnesota and Iowa, have materially improved. We are getting reports now from quite a large number who have secured fair crops of honey. Many report half a crop; still others a fourth, and not a few a total failure. The States that seem to lead off in order are about as follows:

Michigan has had a good season generally—rather better than last year. Ontario reports a good yield. New York sends in a variety of reports, all the way from a total failure to a big crop. I should judge the aggregate would be something under half a crop for New York. Reports are somewhat unfavorable from Pennsylvania, although a few show a good season. The aggregate of reports from Wisconsin and Minnesota is all the way from a fourth to half a crop. A few from these States report an immense yield; but the great majority report poor.

The season in Northern Illinois has been fairly good, but poor in the southern part. Iowa reports from a fourth to half a crop. Vermont may have a fair yield. We have had no reports from the other New England States. The honey season has been generally poor in the South-central and Southeastern States, especially in the Southeast. Re-

ports from Colorado are rather discouraging. The season, unquestionably, will be light in that section. In Texas, Mr. Udo Toepperwein reports as follows under date of Aug. 3:

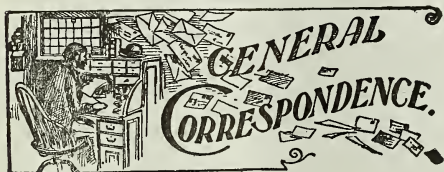
*Mr. E. R. Root:*—Replying to your favor of the 28th, I beg to state that the conditions for a late honey crop have not improved since last report, and, if anything, they are more discouraging. We have just had another storm with some rain, which, I suppose, has finished up mesquite. However, we have had quite a nice little flow from cotton blossoms in different parts of the State; and the reports I am getting by letter, and the reports made at the convention of the Texas bee-keepers at College Station last week, show that bee-keepers are, throughout the State, expecting a fall flow from different weeds, broomweed being the main plant. I am looking for a pecan honey-flow. We had a heavy crop from this last fall, and indications are that we shall have a crop of pecan honey-dew this year. This pecan honey is something like buckwheat honey. A good many people like it; but as it is very dark we usually sell it to the biscuit and cracker companies. The bees are all in very good condition, having plenty of stores for winter.

San Antonio, Tex., Aug. 3. UDO TOEPPERWEIN.

Taking it all in all, I am inclined to think the aggregate yield will not be less than last year in the clover belt; but Texas and Colorado honey will run considerably short of last year. All reports indicate that clover honey is of very fine quality, what has been secured, and a great deal of it will rank fancy.

Bee-keepers should not make the mistake of holding their honey too long. The markets are not now glutted; and, while the receipts are light, good prices will be realized.

In the meantime let the postal-card reports come in. Give us the exact facts, good or bad, for your locality in one or two sentences.



## BEE-KEEPING IN THE ISLAND OF BARBADOS.

Some Misconceptions about the Industry Corrected; Blacks Inferior to the Yellow Race.

BY W. G. HUTCHINSON.

I regret that I can not, in accordance with the invitation in GLEANINGS for April 1st, treat of this island as a honey-producing place in comparison with Cuba, as I have never been there; and, being a distant place, and till of late a Spanish colony, there has not been much intercourse between the two islands, and there is no bee-keeper here, I find, who has had experience with both of them, and of which experience I might avail myself. The affinity of nations is shown up with great clearness in the West Indies. There is always emigration going on from this island to other West Indian colonies, and it is other British; then the Danish, then the Dutch, then the (late) Spanish,

and, lastly, the French colonies, that attract emigrants. The French are the nearest of foreign colonies, but they have the least drawing power over emigrants.

One of your contributors predicts that the future of bee-keeping lies within the tropics. Not *all* the future, perhaps. There seems to be a vigor about bee life in temperate climates that is lacking in warm lands. We read of yields of 400 lbs. to the colony in the former; but I have not heard of any one in this island getting even the half of that. I suppose that, as in other departments, it will be found in time that the tropical bee-keeper will derive help from his brother in temperate climates, and *vice versa*. We are flooded every year with tourists bent on escaping the winter of their country, while our doctors sometimes order us away to a cold climate for the same reason. Again, two-thirds of the sheep butchered in our markets come from the States, while at present we are exporting large numbers there, as they are found to stand the winter better than the native-bred animal, though this may be found to apply, as with West Indians of the human species, to the first or at most the second winter only. In the tropics we shall want in queens the "go" that is begotten in the States, while bee-keepers here may come to want West Indian queens if they have characteristics like our sheep. We have one advantage—no trouble about wintering. Still, in the last and first months colonies often dwindle. A neighbor of mine had three in a flourishing condition in July last year but they dwindled; and, early this year, they became extinct. We have a further advantage in a second honey-flow in November and December, but again the honey gathered there is usually mixed with honey-dew, and so its quality is marred.

There are people in every class of society here interested in bee-keeping, from the Governor (who has recently left us) to this neighbor of mine who is a superintendent on a sugar-estate; but no one has so far relinquished a living for it. Honey is slow of sale; and last year prices ruled as low as 8 cts. a section. Most of our trees and shrubs yield nectar; but practically wherever the sugar-cane can be planted these have been destroyed, so that I doubt whether, outside the suburbs of the town where gardens and trees abound, any yard would support a hundred colonies. Last year Mr. Seale, our oldest bee-keeper, took count of ten of his colonies, and found that they yielded 885 sections, and this may be regarded as a fair yield.

Some on your side of the water favor half-breeds, and others see some good in blacks. My experience here goes to show that the more the black strain prevails the less the value of the bee as a honey-gatherer, putting aside the crossness. I find the best half-breeds are not equal to Italians of ordinary quality. If it is true that it is the fittest that survives, then the Italian strain is the fittest; for the cliffs and bottoms of



rocks that used to be occupied by wild bees are often now to be seen occupied by Italians or half-breeds. If bee-keepers are careful to keep up pure Italian stock it seems that, in time, the black strain will disappear entirely among the wild bees of the island.

Boscobel, Barbados.

#### COMB-HONEY GRADING-RULES.

Only One Bee-keeper out of Ten Understands Grading; Gleanings Rules Preferable to Washington.

*Editor's Note:*—Our readers will remember the article by Wm. Muth-Rasmussen, on page 536, May 15, concerning the confusion in the comb-honey grading-rules. By referring to this page it will be seen that there is a difference between the Washington grading-rules in the *Review* and those given in GLEANINGS; and the question naturally asked is, "Which are correct?" Realizing that this matter is important, we wrote to a number of honey-dealers, calling their attention to the discussion, and requesting their opinion. We have heard from but a few of those to whom we wrote, but we take pleasure in giving those here.

*Mr. Root:*—We have your letter of May 18, concerning the article by Mr. Muth-Rasmussen, about the confusion of grading-rules, and in reply will state that we are always glad to give any assistance or opinions that we can on this important question. In handling the enormous amount of honey that a jobber does in the course of a season, he has a sufficient chance to find out how much some bee-keepers know in regard to grading honey. In putting the matter plain, we might state that only one out of ten understands the grading of honey, or, even if more do, they do not take the time and pains to follow the instructions that have been given from time to time. Take the Washington grading, for instance. According to our experience we could not go by this at all. The fancy grade might pass in some instances, but the No. 1 would look better in a grade of about No. 3 than any other place. We have a trade, as no doubt every other jobber in a large city has, that demands the very finest thing that can be secured in comb honey, and they are willing to pay a good price. For this trade we put out what we call and market as "extra fancy." The sections are all to be filled to the brim on all four sides; the honey shall be snow-white, and the sections all scraped clean of propolis. No unsealed cells may appear in this honey. Then our Fancy and No. 1 are the same as those in the GLEANINGS grading, but we have very little sale for No. 2 honey, and no sale whatever for No. 3, as we think all No. 3 honey where sections are only half filled should never be sold by any bee-keeper; and it is our opinion that this kind of honey is worth too much to the bee-keeper to keep as bait sections for another season. Then in grading amber honey a fancy and No. 1 are the only grades we have any calls for here, with the exception of buckwheat. A great many bee-keepers make a serious mistake in not following the grading-rules as given in the journals; and

a great many of them seem to think that, as long as they put a nice row of honey next to the glass, they can put any thing back of this; and as long as their commission man or jobber does not have time to look at it when they bring it in, all well and good, just as long as they get their money for it. A great mistake is made by a large part of the bee-keepers in using foundation starters in their sections only, as the bees are apt to fasten only the sides and top, and not the bottom of the section. This causes a serious breakage in honey when shipping, no matter how carefully packed. GRIGGS BROS.

Toledo, Ohio, May 19.

STANDARD FOR "FANCY" SHOULD BE HIGHER.

*Mr. Editor:*—Yours of May 18th regarding grading-rules is at hand. We have always thought that your definition of fancy comb honey would not come up to the requirements in Canada. We should not consider as "fancy" any comb honey with most of the outside row of cells uncapped. Comb honey that does not show any open uncapped cells when placed in shipping-crate, with three-inch glass, would be considered fancy. Our No. 1 in Toronto would be about equal to your "fancy." The other would range accordingly. E. GRAINGER & Co.

Toronto, Can., May 30.

[You have evidently confused the GLEANINGS rules with those of the Washington. GLEANINGS "Fancy" does not permit of "most of the outside row of cells uncapped." —ED.]

NEITHER GRADING FOLLOWED; A WIDE VARIATION FROM DIFFERENT PRODUCERS ON THE SAME GRADE.

*Mr. E. R. Root:*—Replying to yours of May 8, asking for our opinion on the grading of honey, we would say that, on this market, neither of the gradings mentioned is strictly followed. It seems to us that, in attempting to grade into "fancy," A 1, No. 1, and No. 2, sufficient latitude is not allowed, and, as a result, no two men will agree as to what would go into A 1 and No. 1. The result is a wide variation in honey of the same grade from different growers. This has naturally led to a grading which may be peculiar to this market, and which, in our judgment, is very much simpler. We speak of "fancy," No. 1, choice, and lightweight. The term *fancy* would cover practically the same as you have it in GLEANINGS. This should include the finest, both as regards color and filling, to be had.

No. 1 would take in all of what is covered by the term A 1, and part of what is now called No. 1. We think the term *choice* better than No. 2. According to the accepted phraseology, No. 2 would mean inferior in quality; but in honey this does not necessarily follow. The quality of No. 2 is in most instances quite equal to that of No. 1. We are now speaking of the eating quality alone. In the sale of honey it is the

appearance that we are dealing with. The eating quality has to be considered separately. This choice grade would take in the poorest part of what is now covered by No. 1 and the better part of No. 2.

We now come to the fourth grading, which is light-weight, and this speaks for itself. In an experience covering over twenty years, we have used these terms almost from the start, and found that they were readily understood by the purchaser; and the difference in the grades was sufficiently plain to make itself clear to one who was a novice in the business.

This is our own experience in our own particular market, and we trust that it may shed some light on the subject.

BLAKE, SCOTT & LEE CO.

Boston, Mass., June 2.

#### FEWER GRADES MORE DESIRABLE.

*Mr. Editor:*—The writer has been reading your letters on the grading of honey. So far as our market is concerned, A No. 1 honey will bring as much as "fancy" when it comes to selling in a jobbing way. Now and then one might find a grocer with a strictly fancy trade who might pay ten or fifteen cents per case more for the fancy honey than for the No. 1; but this is an exception to the rule. We do a strictly jobbing business, and find that, by classifying our A No. 1 honey, and honey marked "fancy" under one head, we never have any complaints. "Strictly No. 1" is the term we mostly use, as we hardly believe in any one quoting any thing as "fancy," that word signifying something different from what almost every person uses. We believe that, the fewer grades of honey there are, the better it is for both the receiver and the producer of honey.

We ourselves believe all honey should be classed according to weight, the white honey as heavy, medium, or light, and amber the same way. In this way we believe the honey-producer would get more money out of his honey than he does at present. The popular demand seems to be for heavy-weight honey, and in several instances we have been able to get from 15 to 25 cents per case more on account of the weight when the quality, according to the grading given in GLEANINGS, would not grade over No. 1 stock.

The marketing of honey in this section during the last few years has been done by the case and not by the pound. The dealers seem to think this a better way to buy, as it saves figuring, and we ourselves find this method more satisfactory, as hardly any two scales weigh alike, and this causes more or less dispute and claims for shortage.

At one time last winter we had on our honey-platform five or six different styles of sections. We believe the bee-men should work in unison, and adopt a uniform section-case. Where we have shipments from twenty-five or thirty shippers, all put up in different sizes of cases, you can readily see

how hard it is to fill an order for twenty-five or thirty cases and give parties a uniform-sized case. The demand in this section seems to be for a twenty-four-section case.

C. C. CLEMONS & CO.

Kansas City, Mo., June 2.

[It would be hard to find a greater diversity of opinion than we have here on these grading-rules. It appears, too, that no two of our commission men follow exactly the same rules, and that no two bee-keepers who do attempt to follow the same rules grade alike on the same grading. One commission man wants more grades and another wants less. The *Bee-keepers' Review* has been recommending one set of rules and GLEANINGS has been putting at the head of its honey column another. It begins to look as if every bee-keeper and every market has his or its own system of grading. This is not as it should be; for under present conditions the quotations for one market can not be compared with those of another. If, for example, I am offered 15 cents for Fancy in New York, and 16 cents for the same grade in Chicago, with equal freights I send to Chicago. I then learn that *my* Fancy is only No. 1 in Chicago, and this brings only 14 cents. Then I wish I had shipped to New York. I send the next lot to the Eastern city and get my price. It is certainly demoralizing to the trade to have such confusion. It is high time that we struck at more uniformity. As it is we are depressing prices by this way of doing. Our columns are open to any discussion that will get us out of this mix-up.—ED.]

#### THE MARKETING OF HONEY.

The Selling of Candied Honey in the Toronto Market; the Folly of Rushing Honey off to the Large Centers.

BY R. F. HOLTERMANN.

Your article on "De Luxe Honey for the Market" interests me very much. It is quite a few years since I inaugurated the system of selling granulated honey in paper. The matter of exhibiting this form of honey is one thing; to put it on sale for the public is quite another. Although several barrels of this granulated or candied honey were sold in a small store in a very short time, it was not followed up by me. A distribution of responsibilities, and much work in hand, prevented me from again taking this method of marketing in hand, a description of which, with a picture of a barrel of honey in a grocer's window, was given in GLEANINGS some years ago. This has grown until the last winter, of which I will now give my experience.

Let me say you have now gone further than I have, and I believe your system is the correct way. I had thought a year ago of cutting the honey into blocks with a butter-cutter, but not of putting them up in the neat package you have designed. I find that



some of the best stores, not all, refuse to "be bothered" with cutting up the honey. It is too much trouble to cut the honey up as you propose, or we would overcome the difficulty.

I have put the candied honey into about thirty-five stores in Toronto; in fact, with one exception, into every store in which I tried to introduce it, and that store had a stock in glasses and tins. The dealer told me he had a stock. I told him to take a tin of the candied; and when he could not sell his present stock, then try to sell the candied. He said, "No, I feel sure if I were to get the candied and sell in blocks then I could not sell my present stock. I will wait until the present stock is reduced, then buy the candied."

I told him he could sell enough candied (where otherwise he would not sell at all) to pay for his present stock; but he declined until later. The sale price is fixed at 2 lbs. for 25 cts. What I sell at does not here matter; but let me say that, at that price, the retailer has a good margin. He is interested in the sale of the goods; can afford to advertise them; and the retailer, not paying for a package, and getting a first-class article, is pleased.

Let me say right here our dull honey markets are largely the result of rushing honey too much to centers. These centers set the price for the country, and are too low.

Next, and very important, bee-keepers are so unbusinesslike that they try to wholesale and retail in the same market. Nothing will antagonize a dealer more quickly and justly. Then, still worse, the wholesaling and retailing are attempted at the same price, or nearly so. A retail establishment is not a charitable institution run for the benefit of bee-keepers, and the margin required on goods is much greater than one not in business realizes. Give your dealer 25 per cent, or more is better, on his goods, and he can afford to push them. In Canada I have created this market. It will revolutionize selling honey; much more honey will be sold in this way, and I do not mind how many more sell in this way, but do not let them cut prices. Every one who gets honey from us is compelled to sell at 2 lbs. for 25 cts., which price is none too great for a first-class article. I find the reason why honey is not sold more is that it is too cheap, and creates suspicion rather than that it is too dear.

I send you herewith a guarantee which each dealer gets to put up with the honey.

\$100.00 REWARD.

Brantford, Ont., Jan. 27, 1905.

To (name of retailer).

Dear Sirs:—We will gladly pay one hundred dollars (\$100.00) if you can find any adulteration in the honey with which we supply you, and which you sell in the granulated solid blocks at 2 lbs. for 25 cts. In our apiaries (which we believe are the largest and best equipped plant of this nature in Canada), our aim is to put upon the market goods of the very best quality.

Yours very truly, FOSTER & HOLTERMANN.

Sell good honey for table consumption; ask a good price; give the retailer a good margin, and distribute it over the country

instead of rushing it off to the large centers, and you will see a different face on the honey market; and, so far as success in business goes, a different face on the bee-keeper. I would suggest that you refuse to supply this "de luxe" style of package to any who would not agree to maintain the retail price. Only the choicest honey should be put up in this way, and it should bring a good price. I am willing to be one to take this package and maintain the retail price. In one store where this honey *candied* is sold they retail as much as two 60-lb. tins. This store now sells more candied honey in a week than it did of the liquid heretofore in a year. I am very much pleased that you have taken this matter in hand. May the bee-keepers now bear in mind not to sell at such a figure, wholesale or retail, as will either leave him no profit or leave the dealer none. You might as well have a honey-extractor without a crank as to try to improve your honey market without leaving the retailer a good profit. I may say I do no retailing at all. I do not want any one to come to my apiary and stop the gang to sell them a few pints of honey.

Brantford, Ont., Can.

[I particularly endorse your advice to give the retailer a good margin instead of rushing his honey off to the large centers. Of course some honey (and perhaps the most of it) must be disposed of through the big markets; but the bee-keepers should be careful not to glut any given city by getting too much in that place. I am glad you appreciate the possibilities in selling candied honey. I feel sure that the future will see much more of it sold than is now. —ED.]

## MEXICAN BEE-KEEPING.

### The Small Undersized Bees.

BY W. D. JEFFERSON.

I will try to describe those little yellow bees of which I sent you a sample from Brownsville, Texas, last winter. They build their nest on a small tree or bush. The outside is built of a material similar to that in wasps' nests. A large colony builds a nest about the size of a ten-gallon keg, and about the shape of a common jug. They leave a small entrance right in the lower end of the nest. When they fill this one with honey and brood, they add another on the lower end; and the Mexicans tell me they often find them with as many as five of those rooms or supers. They often get as much as ten gallons of honey from one colony of those little bees, and they say their honey and comb are much whiter than that made by common bees.

I was not fortunate enough to see any of the comb or honey; but one trouble is, when you tear a hole in their hive and break their honey they leave. The Mexicans also tell me that they have hived them in boxes, and succeeded in making them stay and work, but they plaster the inside of the box with

the same material used in the nest. They are, undoubtedly, great workers, and very industrious. I have seen several colonies of these little bees, but I could not get to see any of their honey or comb. The Mexicans tell me that, if you disturb them, they are very vicious, and sting much worse than the common bees. But they are very easily subdued with smoke. They are much quieter in yards than the common bee just so long as they are not bothered.

At Brownsville, bee-keeping is almost in its infancy. The Mexican's favorite hive is a shipping-box that holds two five-gallon cans of coal oil. They knock the bottom and top off, and tack cloth on the edge and lay it down on its side. When that box is filled they add another one in the same way. I have seen as many as five boxes filled by one colony. There are two or three Americans who have a few hives with movable frames, but they are beginners.

Corpus Christi, Texas, June 17.

#### A VENTILATED DANZENBAKER BOTTOM-BOARD.

A 5x8 Section Holding 2 Lbs. of Honey.

BY H. L. LUCE.

You sketch and comment upon a ventilated bottom-board, page 316. I have been studying ventilation, and will give my method, using the Danzenbaker bottom-board.

I bore two  $1\frac{1}{2}$ -inch holes centered  $3\frac{1}{2}$  in. from back end; 2 or  $2\frac{1}{2}$  in. apart, cover holes on inside with wire screen, and place an ordinary wooden button of  $\frac{3}{8}$  lumber,  $2\times 6$ , fastened with a  $\frac{3}{4}$ -inch screw at the center, under the bottom, so that both holes may be closed with the one button. It is easily accessible, and the ventilator can quickly be opened or closed, wholly or in part as occasion demands.

I believe if J. L. Barfield, pages 490 and 667, would give this wide-open ventilator a trial, thus helping to cool off a swarm just hived, he would have no trouble with bees coming out.

I think this ventilator should be kept closed except when first hiving a swarm; and as hot weather comes on, and a strong swarm shows a tendency to cluster out, then give an opening to the ventilator as the swarm, location in sunshine, weather, etc., seem to require.

I think that, by the use of this ventilator, clustering out and loafing on hot days can be relieved, and along the same line the swarming fever held down very largely, especially with the use of the ten-frame Danzenbaker, and locate in shade after 10 o'clock, giving plenty of room above.

I can not refrain from joining with Virgil Weaver, page 596, in his plea for a larger package of comb honey. While I do not fancy the tin-pail package, I do think it very important that we find a large package. My idea would be for a 2-lb. one-piece

grooved section,  $5\times 8$  inches. I believe the adoption of this alone would nearly if not wholly double the consumption of comb honey, and it could be easily done, for very many honey-producers are now using the plain  $4\times 5$  section, and the  $5\times 8$  section could be used in the same supers without any change or trouble; then any size of carton could be used, holding 2, 3, or 4 sections, making a 4-lb. or 6-lb. package; and, more than that, I am of the opinion that bees would work much more readily in the larger section than in the little cramped 1-lb. section. Does not Mr. Townsend imply the same, page 594? I fancy they might not be so much inclined to sulk; and I think more honey could be stored, as all the bees could be kept constantly at work.

There seems to be one drawback to getting this one-piece  $5\times 8$  section, for I have tried three or four factories this spring, and they all tell me their grooving-machine will not take so long a piece. Now, Mr. Root, will you not get a new machine made that will make this section? If so, I am your customer for all I can use, and I know I can sell the  $5\times 8$  section here too. It ought to prove to be economy, too, for the  $5\times 8$  ought not to cost much more per 1000, and would hold 2000 lbs. instead of 1000 lbs. If you will get out this section you may send me the first 1000.

Inavale, Neb., June 21.

[In moving bees to an outyard these two holes in the bottom-board, as you describe, would come in good play; but generally it would be cheaper and more practicable to put four  $\frac{1}{4}$ -thick blocks (one at each corner) between the bottom and hive-body. When the swarm calms down, or the weather turns cool, remove them.]

The bees will certainly take to the large sections ( $5\times 8$ ), but the average market would not receive them as kindly.—Ed.]

#### WHAT IS THE U. S. GOVERNMENT DOING FOR BEE-KEEPING?

With Photos by the Author.

BY REV. D. EVERETT LYON, PH. D.

Believing that it would be of great interest to the readers of GLEANINGS to know from an eye-witness, and to see from photographs taken on the spot, what the U. S. Government is doing for apiculture, the writer was sent to Washington in May, at the expense of The A. I. Root Co., and the following is an account of that tour of investigation:

Upon arriving in Washington, D. C., on the afternoon of Tuesday, May 22d, I at once hurried over to the office of Mr. Frank Benton, the head of the Division of Apiculture, to make final arrangements for an inspection of the government apiary. Mr. Benton greeted the writer in a most cordial manner, and in our association together on that and the following day impressed me as



an intense lover of bees, and anxious to do every thing possible for the advancement of the bee-keeping profession.

Mr. Benton is of medium height; I should say about 5 feet 7 inches; weighs about 130 pounds; and, though his hair and moustache are iron gray, his eye is bright and his step has the vigor of youth, and it will be many years before he will be called upon to see Professor Osler.

From what I saw and heard I am convinced that no other man in the United States is as well qualified for the position of government apiarist; for, in addition to many years of experience in keeping and studying bees in this his native land, Mr. Benton has spent years in Cyprus, Austria, Turkey, India, and the Holy Land, in forming an acquaintance with and in studying the habits of many races of bees in their native habitat. In addition to all this, Mr. Benton is a born investigator along entomological lines, and wears with honor to himself and his alma mater his degree of Master of Science.

So much for the man—now for our visit to the apiary. It has been only within the last two years that the government has had an apiary, and that quite limited—only 50 colonies, of several pure and some hybrid crosses—simply for purposes of experimentation. The apiary is located right in the heart of Washington City, on a beautiful common in the rear of the Agricultural Building. In the yard are colonies of pure Italians, Cyprians, Carniolans, and Caucasians, and a number of colonies of crosses of above-named breeds. The mating-ground is over on the Virginia side at Arlington, so that there is no trouble on the score of controlling such matings as are desired.

I was much impressed by the freedom with which Mr. Benton handled a colony of pure Cyprians, and I looked upon these operations from a safe distance, knowing full well the vindictive disposition of this race of bees. The morning was very cool, making it unfavorable for handling any race of bees, to say nothing of Cyprians; but in spite of this Mr. Benton, without veil, gloves, or smoke, opened a hive of pure Cyprians and lifted frame after frame from the hive and shook in the air the bees from off their combs, and, although they flew about him quite excitedly, yet they made no effort to sting him, which was to me a revelation. Mr. Benton assured me, however, that the Cyprians were a race not to be trusted, and when once fully aroused could not be subdued by the densest smoke, and for this reason they would never be generally kept, although they excel all other races as honey-gatherers. He did believe, however, and some crosses that he has made confirm his belief, that by mating a Cyprian queen to a drone of a gentle race like the Carniolan or Caucasian we could in the progeny get a bee that combines the honey-gathering zeal of the Cyprians with the gentleness of the race with which the queen was crossed; and in this connection Mr. Benton assured me that in a cross the offspring partook more

of the quality of the drone than of the queen, so for that reason he had used drones of gentle races with which to fertilize the Cyprian queens rather than the drones of Cyprians with which to produce a cross with queens of the gentler races. We next opened a colony of pure Carniolans, a race with which the writer had had previous pleasant experience, and found them to be remarkably gentle, a trait characteristic of this race. Mr. Benton stated that he could not account for the prejudice that so many bee-keepers have for this race, for they are, with the Caucasians, of which we will speak in a little while, the gentlest of all races, not even excepting the Italians.

Several years ago the writer secured a Carniolan queen bred from an imported mother, and purely mated, and the gentleness of her offspring was almost beyond belief. Their hives could be opened and jarred without smoke, and the writer often handled them upon coming from the stable with the odor of the horse upon him, and they did not resent it—a fact that can hardly be said of other races. Coming from the cold Alpine regions of Austria, they began to work earlier in the season than the blacks or Italians, and would begin work earlier in the morning and continue even into the cool of the early evening because of their hardy constitutions, due to centuries of residence in the cool mountains of Austria. Their comb honey was whiter than that made by Italians, due to the fact that they do not cram the cell so full of honey as do other races—this often giving it a watery appearance—but they leave the cell just a trifle short of being full and thus preserve the snowy whiteness of the capings, so much desired by the purchaser of a high-class grade of honey. Mr. Benton declared that years of experience had taught him that, with proper care, Carniolans were no more prone to swarming than other races—a fact that the writer also had found by experience. These bees are black, with bodies more or less covered with gray down, and ringed on the abdomen with gray.

We next examined some crosses of Cyprians and Carniolans, also of Cyprian and Caucasians, and found in each cross a fine blending of the characteristics of each race. The main object of my visit was to see and learn the facts concerning the Caucasian bees, as the daily press has had much to say of them of late, some journals going so far as to say that they were a non-stinging race of bees. There is but one pure colony of Caucasians in the country, and that is in one corner of the apiary, and from that colony a number of queens are being reared, and in this connection friend Benton requested me to say that the Government has no idea of going into a free distribution of queens similar to its annual seed distribution, as the demands would be beyond all possibility of filling. In 1902 Mr. Benton secured three Caucasian queens direct from Russia, and in 1903 had full colonies with which to begin the season. The most striking quality pos-

sessed by this race is their wonderful gentleness; in fact, no smoke is needed, as a rule, to quiet them, as they may be manipulated without veil or gloves. The only time they seem to show any signs of resentment is on a cool morning if their hives are unduly jarred; but a slight whiff of smoke over the tops of the frames is sufficient to quiet them at once. No smoke was used at all when Mr. Benton opened the hive, although the morning was unusually cool, so cold, in fact, that the writer was compelled to wear a spring overcoat, and yet the bees were as gentle as lambs. Frames were lifted and purposely dropped back into place, the hive jarred, and in addition to all this the bees were rubbed around the comb with the palm of the hand; hot breath was breathed upon them; in fact, every thing that angers bees was done to them, and their submission was simply wonderful. I have handled many races and crosses of bees, but never saw any as gentle as those Caucasians. I can readily understand how the press has spoken of them as "stingless bees." As to their honey-gathering qualities they are not remarkable, but hold their own alongside of the Italians and other races of that grade. In size they are slightly smaller in body than the Italians, and in this respect conform to the type of oriental races. The queens vary from a golden orange to a black color, inclining, however, more to the dark type.

The workers are not very uniform in their marking, but the general type is of a peculiar leaden gray that gives the race a ringed appearance. They are very prolific, and the workers are active and keen in their quest for nature's sweets, and for crosses with Cyprians the drones of this remarkable race will be very valuable.

It now being nearly noon we started for the offices of the Bureau of Entomology, and found that the Division of Apiculture had quite commodious quarters in the annex to the Agricultural Building. In addition to Mr. Benton as chief there are others in the Division of Apiculture whom the writer had the pleasure of meeting, and found that all were enthusiasts on the subject of bees. I might state that I met at the apiary Mr. E. F. Phillips, Ph. D., professor of entomology at the University of Pennsylvania, a gentleman well known to the readers of GLEANINGS through his valuable contributions, and I was pleased to learn that Dr. Phillips had been appointed government expert in apiculture, and will at once sever his connection with the university to take up his duties as an associate of Mr. Benton. We also visited the queen-rearing nuclei where queens of various races are being reared, and found that every thing was being done with a degree of enthusiasm and intelligence that augurs well for the bee-keeping world.

A good many people have had the idea that Mr. Benton's position at Washington was a political sinecure, but the reverse is the case; and now after many years of effort

on his part the Government has awakened to the importance of the bee-keeping industry, and from now on great things may be expected, and we may look upon the Division of Apiculture with its expert corps of workers as deeply interested in our success, and upon the apiary at Washington as our experimental station.

In the office I saw specimens of *Apis florea*, the tiny East India bee, also *Apis dorsata*, the giant bee of India, the workers of which race are as large as the queen bees of the blacks or the Italians.

I was glad to see that the bulletin issued by the U. S. Government, on "Bee-keeping," gives the lie direct to that artificial-comb-honey canard that is forever cropping out.

During my visit I found Mr. Benton very busy getting ready for a tour of investigation of Asia and the Orient, to be gone a year, in quest of new races of bees, and I have just received a letter from Dr. Phillips stating that Mr. Benton did start on June 3d from Philadelphia on the steamship Merion, and will not return until the summer of 1906, with colonies and nuclei of bees obtained in different parts of Europe, Asia, India, and the Philippine Islands. The journey carries him through some of the most dangerous parts of Asia, and one stage of the journey through Afghanistan is by camel caravan for nearly a thousand miles. The colonies that are secured this spring and summer in the Caucasus and other regions of Asia and India will be shipped to the south of France for the winter, and will be brought to this country the following spring by Mr. Benton after he has concluded his investigations in the Philippine Islands.

Upon looking over the prospectus of the Division of Apiculture for 1905 I find that much is now to be done, a copy of which is herewith printed.

U. S. DEPARTMENT OF AGRICULTURE, }  
BUREAU OF ENTOMOLOGY, }  
Washington, D. C. }

WORK IN APICULTURE, FISCAL YEAR 1904-1905.

The purchase and fitting up of a model apiary of 50 to 60 colonies of bees to be used in experimental work, with small laboratory, work-shop, and implements, at Arlington Experimental Farm.

The introduction, testing, and dissemination of seeds, cuttings, roots, etc., of new and promising honey-producing plants.

The investigation of certain contagious bee-diseases, particularly the foul brood, or black brood, now devastating apiaries in the State of New York.

Investigation of the bees of the far East, particularly the larger races known as the Giant bees of India (*Apis dorsata*, and *zonata*), found in East India and the Philippine Islands; also incidentally to investigate at the same time the possibilities in apiculture in the Philippines, and the probable benefits from the introduction of modern methods there.

The importation and testing in various portions of this country of breeding-queens of the Caucasian, Cyprian, Dalmatian, Italian, and Carniolan races.

A test of the employment of artificial heat in the wintering and rapid breeding up of bees.

Construction and testing of hives and accessories adapted to migratory or pastoral bee-keeping.

OFFICE AND OTHER WORK.

1st.—To collect data regarding apiculture in the United States.

a.—As to principal honey-producing plants of the various regions.

b.—As to losses of bees by disease and in wintering.





A GENERAL VIEW OF THE EXPERIMENTAL APIARY OF THE U. S. GOVERNMENT, AT WASHINGTON, D. C., IN CHARGE OF FRANK BENTON, PHOTOGRAPHED BY D. E. LYON.

- c.*—As to races now kept.  
*d.*—As to proportion of frame to box hives now in use.
- 2d.—On the basis of these data it is proposed to map on outline-maps of the United States the areas of the principal honey-producing plants, and to determine where and what new plants could be disseminated for the purpose of increasing bee-pasturage.
- 3d.—The publication of a bulletin on pasturage for bees, the manner of increasing it, with cultural and other notes on new honey-producing plants; a bulletin treating of migratory or pastoral bee-keeping, and a bulletin on the best methods of rearing queen bees.
- 4th.—The beginning of a card index of apian literature.

5th.—The beginning of careful studies to complete a knowledge of the life-histories of the various insect enemies of bees.

6th.—The rearing and distribution for the testing and introduction of fresh blood into different parts of the country of 300 queen bees of improved races and crosses.

When the writer took the train for home he felt that from what he had seen he could "bring a good report of the land" for the readers of GLEANINGS. The accompanying photos I took, which will be of interest to the bee-keeping fraternity.



A CORNER OF THE GOVERNMENT APIARY WHERE THE CAUCASIAN AND CARNIOLAN COLONIES STAND. PHOTOGRAPHED BY D. E. LYON.





MR. BENTON AND HIS ASSISTANT LOOKING OVER SOME CAUCASIAN QUEEN-CELLS. — PHOTOGRAPHED BY D. E. LYON.



THE GOVERNMENT APIARY OF CYPRIAN BEES; MR. BENTON HANDLING THE COLONY AND DR. E. F. PHILLIPS IN THE LEFT FOREGROUND.  
PHOTOGRAPHED BY D. F. LYON.







MR. FRANK BENTON HOLDING UP A FRAME OF CAUCASIAN BEES. PHOTO BY D. E. LYON.



## MANIPULATING HIVES FOR INCREASE.

Alexander's Plan Appreciated because no Brood is Lost; Unripe Honey Sour.

BY J. A. BEARDEN.

I have been reading GLEANINGS for a short time only, but I have not seen any thing therein that I think possesses as much value as the article on page 425, April 15, by Mr. E. W. Alexander. Now, what I consider the best thing in these manipulations is the fact that no brood is lost just at the very critical time, i. e., before the honey-flow commences; and you will find by trying his plan that, whenever all of the brood but one comb is placed above the excluding-zinc, the queen seeing nothing but empty combs and bees in plenty to care for brood are at hand, that she will just get down to her work of multiplying as far as her own home is concerned.

Now you can look at her combs on the fourth or fifth day after making a division of the brood-nest, or the excluding of the queen from her young bees in larval form, and see how much more she has done at egg-laying than usual, and then you will believe also.

Now, I have been trying his plan, and I was vexed at myself for not seeing such a plain and excellent way to do such work; and as I worked, I studied all about the plan; so when I received two valuable queens about that time, I just took some of this brood above the excluder that was all capped over to make up a colony of all young bees to introduce my queens into; and, just to think that, heretofore, a lot of brood would fall out of the cells! and now here all was nice and clean, and no loss of brood, no loss of queen, and the old colony now at this date (ten days after placing brood above the excluder) with a good lot of capped brood.

But I also tried an experiment on one colony, to which I had introduced a strange queen, as I followed the same plan as above, or the young hatching-brood plan; and as I knew I should lose the uncapped brood I waited until I could make one colony queenless and broodless for 48 hours, and then I took one frame of this queenless and broodless colony, with all the adhering bees, to my new-made colony with introduced queen, and placed them at one side of the hive furthest from the small bunch of young bees; for I almost forgot to say that this colony of young bees was made up on the previous day, and a small bunch of young bees had hatched out in the mean time. As I had the entrance closed with wire cloth and wooden plugs, these new bees were literally jailed up also; and as I was both quiet and quick at this work, these new bees just took to work for their new-found home and mother, and by the end of that day I had old bees at work feeding and watering brood as though they were their own sisters.

Now, by watching for your queenless and broodless colonies, and using them one frame

at a time, you can be sure and safe in introducing them to hives containing a valuable queen.

Mr. Dan White gives us all the keynote to selling and keeping on selling to the same man, on page 650, and also tells us how to use his uncapping-knife on all combs that he extracts.

When I commenced to take extracted honey, some 18 years ago, I listened attentively to two bee veterans of fine education telling how they got into trouble. One said that he had got a new extractor, and every Saturday he would extract the week's crop of basswood honey, and bottle and send to town to his local grocer; and oh how he did make the change roll in! but after a while a sort of stop came in the demand, and his grocer friend sent him word to come and see his sour honey. He went, and found it soured, "and," said he, "it took me about ten years to get up my name again where I wanted it to be as an honest producer, and all because I had not found out that basswood would sour if extracted too soon after gathering. Now, I have just stepped in to sell only such honey as was capped over, or very nearly so, and now I have a good demand for all I can produce, and my guarantee is this: If this honey is not satisfactory, let me know and I will pay your money back in full, excepting such as you may have used of this can. I have never had to take back a single can yet."

Harms, Tenn., June 26.

## OUTDOOR FEEDING.

The Plan Successful When Robbers are so Bad that Individual Feeding Becomes Dangerous; a Spray-pump for a Feeder.

BY W. L. PORTER.

Wishing to make a visit to Idaho this spring for about four weeks I went through all my hives in April to see that all had sufficient stores to last until June 1. On returning, the first week in June, I found a part of my apiary had suffered very badly by being short of stores. Almost every green plant had been cut to the ground, including alfalfa and all wild flowers on which bees were gathering sufficient honey to live. With the wild flowers cut off they soon exhausted the honey held over in eight-frame hives.

I found the apiary a pitiable sight, the hives full of bees with not a drop of honey in sight, and the eggs and young larvæ all consumed by the bees. I had with me 20 gallons of feed—honey thinned one-half. By the time I had fed five hives I had the whole apiary upon me, and it looked as if the fed hives would be destroyed by the hordes of robbers. I soon saw that the only way to feed was by outdoor feeding. This I did by laying down hive-covers until I had a string about three rods long, and with the Deming spray-pump fastened to a ten-gallon lard-tub, which has a cover in which I cut a slot to

pass around the pump. Around the tub a piece of burlap is folded to keep all robber bees out. I diluted the feed still more, and then went to work pumping a spray of the feed on the covers and into extracting-combs which were laid a few rods from the hives; and to induce all the bees out we burned a little honey. The bees came in waves; and when we had got to the end we soon could commence over again, as the bees would leave the boards when the honey was gone. I noticed hundreds of drones out helping themselves from the boards. It was the first time I ever saw a drone hustle for himself.

After a few hours of feeding in this way I could open any hive I wished, and pump directly into an empty comb and have no trouble with robbers.

Three days after, we visited them again, bringing with us a good frame of last year's honey for each one of the hives. Then we again set the pump to work, and sprayed some combs with thin granulated-sugar syrup, and were able to open each hive and place the honey in the center of the brood-chamber without interruption from robbers; and, to my great delight, at this time I found the combs again filled with eggs and larvæ.

#### THE SPRAY-PUMP AS A FEEDER.

The feeding of bees is not new. Outdoor feeding and feeding in the hive have been discussed over and over in the journals, but I have never seen a word about using the spray-pump as a feeder. It can be attached to a lard-tub or something similar, so a five-gallon can of feed can be turned in at once, and can be so fixed that a robber can not get in. It throws a spray that goes direct into the extracting-combs without any waste, so a comb will hold from four to five pounds. Turning the little lever on the end of the spray at a right-angle shuts it off so not a drop will leak.

It is a handy thing to have around to spray shrubs and trees for insect pests, and is handy to clean windows and buggies. I have used it to fill combs in the cellar, taking out a barrel of feed at a load, filling the comb one day and taking them out the next.

I have not tried the knapsack sprayer, but I am not sure but that it would be handy, as the bee-keeper could have the feed on his back when looking through hives and turning in whenever it is desired.

Denver, Colo.

[There are large possibilities in outdoor feeding; and where there are no near-by neighbor's bees, a whole apiary can be fed up far more economically than by the individual-hive plan. It is surprising how outdoor feeding will fix the robber problem. Our correspondents experience on this point is exactly ours.

So far as I can remember no mention has been made before of the spray-pump for outdoor feeding; but I would question the advisability of filling combs direct into thin

syrup for a winter food. I should be fearful that the bees would not ripen the syrup as they should. Is it not a fact that all saccharine matter passing through the bodies of the bees is changed chemically so that is a more fit food for bees? If so, they should themselves put it into the combs.—ED.]



EXPERIENCE WITH THE SIBBALD NON-SWARMING PLAN; COLONIES SO TREATED NOT AS SUCCESSFUL AS NATURAL SWARMS.

As you requested reports on non-swarming methods I will give you my experience in testing the Sibbald plan.

During May 13, 14, and 15, I had seven swarms come out. I hived them on starters, and four of them I placed on the site where the old hive stood, and moved the old hive to a new site, and three of them I placed beside the parent hive with the entrance in the same direction, and seven days later I moved the parent hive to a new site and put the new hive over where the old one stood.

On the 14th of May I found two hives with ripe queen-cells (I think they would have swarmed the 15th). I put supers containing partly finished sections containing a little honey on them, and the next day, the 15th, about 9 o'clock (I did not wait later lest they might swarm), I found the supers pretty well filled with bees, and I treated them according to the Sibbald plan for increase.

June 13 I inspected the seven hives that swarmed naturally, and their parent hives. I also inspected the four hives treated according to the Sibbald plan. I found the seven natural swarms all in good condition, and ready to receive supers. Of the four parent hives that I moved directly to a new site, two were in good condition, nearly full of brood, and a good deal of it capped. They were ready for supers; but one of them was queenless, and one was so weakened that they robbed it the next day after it cast the swarm. I stopped the robbing, but it lost nearly all of its brood, but on June 13 it was half full of brood, some of it capped over. It looked about like the Sibbald hives No. 1. The three parent hives that I left on their original stands until the 7th day after casting swarms were all in good condition, with plenty of brood, and ready for supers.

Of the four hives treated according to the Sibbald plan, none are equal in number of bees and amount of brood to those that swarmed naturally, and none are in condition to receive supers. One of them (a hive No. 2) cast a small swarm June 12, and they



would not stay in a new hive. I examined the hive they came out of, and some of the queen-cells were bitten open. I shook them back into the hive they came out of, and they stayed.

I think the queen did not leave with the swarm, but stayed and got in her work on the queen-cells.

None of the hives that cast natural swarms cast after-swarms.

Parma, Idaho, June 15. F. A. POWERS.

#### THE WEATHER AND THE HONEY-FLOW; THE CAUSE OF QUEENS BALLING.

I have read carefully Mr. Crane's article, page 306, also the one by Mr. Classen, page 486. Our main flow this year was in just such a time as Mr. Crane described. I don't think that thunder has the same effect that he says it does. But we have a very sorry crop of honey, but more swarms than we have had in ten years. As to whether or not a dry season darkens honey, our best honey is made in a dry spring. When we have a wet time we always get a bad lot of honey. We have only amber honey, but some of it looks dark and smoky, and is always thin.

I want to ask a question. I hived a swarm with a clipped queen. The next day was rainy; but the next they came out, I put the queen back, but late that evening I found her dead. What was the cause? I hived one off a pine. As soon as they went in I moved the old hive and put a new one in its place. In a minute or two they came out and went back to the pine. I looked and found the queen balled. I put the ball in cold water. As soon as I could get the queen I put her back in the new hive. The swarm soon came back, and has been all right ever since. What do you think was the cause? As indicated above, about the only thing we got this year was swarms and robber bees. J. S. PATTON.

Havana, Ala., June 3.

[A swarm will very often ball the old queen, because there is a virgin present that suits its fancy more. It will, if it make repeated attempts to go off, and the queen as often fails to follow, because she is clipped, finally kill her. When the first attempt is made the swarm should be properly hived, and even then a virgin may come into the family with the result that the old mother is sacrificed. Or it may happen that a small swarm will unite with a large one unknown to the apiarist. There will then be some balling business going on in all probability.—ED.]

#### DO VIRGINS GO INTO THE WRONG HIVE BY MISTAKE?

Referring to your footnote to R. J. Melville's article, p. 609, regarding "mistakes made by virgin queens," I beg leave to argue that, in many cases, they don't make a mistake, for this reason. On May 23 I introduced a golden queen to a three-frame nucleus. Thinking that all was well, I no-

ticed them but little afterward until July 1, when I was watching them, and was surprised to see a queen alight and run right in, which proved to be returning from her wedding-flight. On opening the hive or nucleus, which had been made up of black bees, I found that there were no eggs; but I found some capped brood and young bees by the hundred emerging, which were pure goldens. I wondered why they had superseded this queen, which was a young one, which I had just received from Arkansas. But I found to-day that the queen was not superseded till after she had deserted. I find her now in a colony of blacks, at least 40 feet from this nucleus, with thousands of young goldens already at work. She could not have come from another hive, as there are no other goldens within 50 miles of here. I can't understand just why she left unless crowded out for room. The swarm with which she found a home was hived April 22, and at that time had a queen that was apparently all right.

I think this instance will be a puzzler for that veteran bee-keeper Dr. Miller.

W. S. MCKNIGHT.

Newtopia, Ala., July 15.

[The instance cited does not really prove any thing either way. Our large experience rearing thousands of queens shows that virgins do get confused just as do young bees, and go into the wrong entrance sometimes. That a queen may *purposely* go into another entrance, is not denied. When a laying queen has filled all the available cells in a baby nucleus full of eggs, she is quite liable to leave for larger quarters, and the bees may or may not go with her.—ED.]

#### HOW TO WINTER A PLURALITY OF QUEENS IN ONE HIVE OUTDOORS.

I have several large observatory hives and also a lot of small ones as nuclei, where I keep queens for future use. I have also several ten-frame hives with screen divisions in the center—a queen on each side—and wintered them on the summer stand without any loss. When I need a queen in the spring I take one out of one side, then remove the screen division. This method has proven to be very satisfactory. I am not sure whether any one else has ever done this for keeping queens for spring use; but I would recommend every one giving it a trial, using, of course, a chaff hive. It has taken a lot of time, labor, and study, but I now look with pride over my apiary, and believe I have as well-equipped and up-to-date one as there is in the country.

WM. REIBER.

Spring Mills, Pa., July 12.

[Where you speak of "screen divisions in the center," you probably mean several wire-cloth division-boards that reach from end to end, and top to bottom of the hive, running parallel with the frames. You do not say whether you have more than one frame in a division. Attempts have been

made to keep queens in this way, but I think have generally resulted in the loss of nearly all the queens. A second attempt on your part might not prove so favorable. Better results would be secured in a good dry cellar on the same plan instead of outdoors. If any one else has tried this or any other plan for keeping queens over winter that has worked successfully, we should be glad to have him report.—ED.]

#### GIVING A QUEENLESS COLONY A QUEEN-CELL WHEN FOLLOWING ALEXANDER'S METHOD OF INCREASE.

On page 606, W. H. Crawford wishes to know if any have tried giving the queenless colony a ripe queen-cell in trying the Alexander method of increase, page 425.

At swarming time I took a colony with a queen-cell and put the queen and a frame of brood in an empty hive-body, with drawn combs, with a little honey in them from last year. I put this on the bottom-board; on top of this a queen-excluder, then the rest of the brood with the ripe queen-cell on the queen-excluder. After eleven days I put the top body with brood and queen-cell on a bottom-board in a new location, the same as when increasing by nuclei. The queen hatched and is laying. The colony is working finely. F. G. RALPH.

Hyrum, Utah, June 12.

[Your results will be better, I feel sure, to put the laying queen in the new hive below, as recommended by Mr. Alexander. If, for some reason, this is not practicable, you can give cells as described.—ED.]

#### WHICH ONE OF THE FIVE SENSES WOULD ACCOUNT FOR THIS?

I see in the April issue that J. W. Porter, M. D., of Ponca, Neb., asks questions about the five senses. The first part of this month I bought two colonies of hybrids, and they were in common cross-stick hives; so the first thing was to transfer (for if I owned only two colonies of bees I would have them in proper quarters). But I transferred them, and they seemed to be all right, so they were not near any other colonies, so I just cut out the good honey, and the brood comb was so dirty I came to the conclusion I would let the bees carry out the honey. I set the old hive a little distance from the new one. One of my colonies did not like their new quarters, so they just picked up and left me, and the two old hives remained there about five days. After the colony left I noticed some young bees crawling from the old hive to the one that was vacated, so I went to investigate and found about a pint of young bees and no queen. I had no queen to give them, so I supposed they would die; but I watched them, and on the 9th day they also went to an unknown place. Whether they followed the original colony or not I can not tell, but rather think so. The other young bees went to their hive, and they

were within 18 inches of one another, and they never made a mistake.

Dayton, Wash. C. W. CURTEMAN.

[The young bees hatching from the brood in the old hive were probably attracted to the new hive, formerly occupied by their older sisters, by the colony odor. But it seems a little strange that they should desert a hive that must have had some brood left, and having the same colony odor, for one having no brood. Perhaps the new hive had a fresher odor.

It is hardly probable that the first lot of bees followed the second lot.—ED.]

#### A GOOD SUGGESTION ON INTRODUCING.

So many inquiries are made for a safe method of introducing queens by parties responding to my recent offer of queens for sale in GLEANINGS that I forward a plan I have followed most successfully during the 35 years I have been engaged in bee-keeping. Place the queen you wish to introduce in a cage with a dozen young bees from the colony to which she is to be introduced, and place the cage in position in the hive, immediately upon the removal of the queen whose place she is to take. A provisioned cage is best, though an unprovisioned one will answer. Getting acquainted with strange bees is often more reason for bees refusing a queen than any antipathy to herself. I find very few colonies object to a queen introduced in this manner. Indeed, most of them fail to realize that they have been queenless at all. My loss does not exceed one or two queens out of a hundred, even under unfavorable conditions. B. F. AVERILL.

Howardsville, Va.

[Your suggestion is excellent. It has been mentioned before, but like some other good things has been overlooked. It would not be practicable for a beginner to apply it.—ED.]

#### LAYING WORKERS AMONG HOLY-LAND BEES.

According to the A B C, laying workers are apt to turn up "wherever the bee-keeper has been so careless as to leave his bees destitute of either brood or queen for ten days." I made a colony of Holy Lands queenless and broodless; left it so four days, then gave it a frame of eggs and larvae to build queen-cells. To-day, eight days since brood was given, I found eleven cells sealed, and laying workers busily at work. In some cells (all worker) they have deposited half a dozen eggs. I caught one in the act of laying, killed and examined it, and found it had only one more egg. So laying workers may also appear where unsealed larvae are present. This case may, however, be an exception to the general rule.

J. G. BAUMGAERTNER.

New Memphis, Ill., July 11.

[With ordinary Italians you would not be liable to find laying workers under, perhaps, a month of queenlessness. The same would



be largely true of hybrids and blacks. But with the Eastern races, especially Holy Lands, laying workers might appear within two or three days, but usually not for about a week. The case mentioned is not unusual, even with unsealed brood. When we were rearing the Holy Lands extensively we had to be extremely careful not to let a colony be queenless very long.—ED.]



On page 556 I mentioned one of the papers read at the Congregational conference at Chatham, Ohio, and said I hoped to give it a place on these pages. I take pleasure in presenting here a paper by Dr. Leonard, "What we Owe to the Young."

Suffer little children to come unto me, and forbid them not.—LUKE 18:16.

Jesus said to his disciples, "Suffer the little children to come unto me, and forbid them not." In the Greek original the phrase "little children" has a meaning broad enough to include the young of all ages, all who have not attained to adult years. He seemed to want them in particular, them more than any other class. If any are to be hindered, let it not be these. Paul expressed the conviction that he was "debtor to all," that is, was under obligation to do his very best for everybody, and counted it his great business in life to pay that debt. Just so it is with us all. But the present consideration is the obligation we are under to benefit the young, to hinder them in nothing, in every thing to help them to be their best selves; how we are to regard them; what treatment we shall accord, as individuals, as communities, in connection with church life.

Well, certainly they have rights, claims upon us, which are most sacred, and hence are to be safeguarded and kept inviolate always and by all. Once it was only kings and nobles to whom such privileges were accorded; later to all men, if white; later still to blacks as well; and, finally, women's rights are asserted far and wide; and we even hear of the rights of brutes, cruelty to animals being counted a crime. Nevertheless, it is much to be feared that not many have learned to put the rights of children, little children, the young of every class, in the forefront of thought, of solicitude, of planning, and of daily endeavor.

It may not be amiss even to suggest that the little ones are not to be esteemed nuisances, encumbrances, dead weights, loads for adults to carry, torments, necessary evils, costing tremendously but making no returns for the expenditure required. Of late, reports come from the cities that, from certain flats and apartment houses, all married couples with children are rigidly exclud-

ed. In homes not a few, babies and troublesome tots are unwelcome; in more, they are scolded and cuffed on frequent occasions, while in very few are they rated at their full value, accounted the very choicest treasure the home can contain. But a house without boys and girls in reasonable numbers among the occupants is most scantily and miserably furnished at the best. "So distractingly and everlastingly noisy," you say. Well, a desert is quiet to perfection, as is also the grave; but for all that, they are deemed good places to be shunned. The young pay their way from first to last, and much more. They give to their elders far beyond the utmost they receive. In many ways they constitute the most important portion of the population. Upon them the future of society almost wholly depends. They keep us young, they help wondrously to hold us back from becoming altogether selfish and sordid and earthly. When we cease to love them, to hold them in reverence, and lose the disposition to minister to them in every way possible, it is high time for us to take our departure from earthly scenes.

How solemn are our Savior's words, though their full signification we may not be able to fathom! "Whosoever shall cause one of these little ones to offend [i. e., tempt, cause to stumble], it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea." And these: "Take heed that ye despise not one of these little ones; for I say unto you that in heaven their angels do always hold the face of my Father." Is it, then, too much to affirm that the young are entitled to the best, the very best, of our thought and planning and daily endeavor?

And what do we owe them? Well, among other things, good homes, healthy bodies; minds enlightened and trained by education; hearts swelling with noble desires. We owe them daily examples worthy of imitation, surroundings in which good influences greatly predominate. It is with their welfare especially in mind, primarily for their sakes, that we are to handle the liquor question, the tobacco question, the amusement question, dancing, cards, etc.; with supreme reference to them rather than to our pockets, our convenience, to suit the business men, or the politicians. Good schools should be theirs, of course, with the best teachers to be found to lead and inspire; the very best of men and women, though such may cost more. Our children are worthy of the utmost we can bestow.

As churches and pastors, what do we owe the young? How shall we carry ourselves as touching them, their needs, the boundless possibilities of good, of evil also, which reside within them? To begin with, our theological seminaries have a priceless opportunity, a solemn duty, at this point, to impress it upon the students that their ministry, whether in connection with preaching or with personal work, is to be aimed, not at grown folks so much as at the younger half or two-thirds of their parishioners. In

the sermon, both text and treatment, whether introduction, illustrations, or conclusions, the preacher ought to be supremely mindful of Christ's little one. "Feed my lambs," he said to Peter; and only after that, "Feed my sheep." Even five-minute sermons, though better than nothing, will not at all suffice with thirty or forty minutes devoted wholly to those who are old enough to feed themselves. The Master's teaching was commonly such that the boys and girls could readily catch at least something of his meaning, relating as it did so often to natural objects and every-day themes, the birds and flowers, and so often taking the form of stories. It is neither Christian nor sensible to serve a feast to adults twice a Sunday, a hundred times a year, with only now and then a crumb cast to the children. If need be, rather let the process be reversed.

We hold annually our State ecclesiastical gatherings; twice a year we assemble in our local conferences; but how seldom, how almost never, with this as the theme of discussion—"The welfare of the rising generation—what shall be done to enhance it, and how shall we go about the performance of the supreme task?" Yes, and the farmers meet every now and then to discuss soil and stock, cattle and swine, grains and vegetables; how to banish the pests which destroy the crops, and how to secure the largest and best returns for labor expended. But who ever heard of a gathering, whether of men or women, saints or sinners, to consult how to produce, out of the crude beginnings known as infancy, the finest possible crop of boys and girls, husbands and wives, fathers and mothers, of the highest type of citizens and patriots? And the suggestion is most pertinent that, if such assemblies were to be held, the supreme question considered should be, not how to cure or remove the plagues which afflict human nature and human society, bring enduring and deadly blight to character; but, rather, how to prevent them, or at least reduce the damage to a minimum. Better a fence at the top of the cliff than a hospital at the bottom.

Well did Jesus put the query, "with more than a touch of sarcasm, 'Is not a man better than a sheep?'" To be sure, at this point something has been done in our churches in recent times which was hitherto unknown, in the Sunday-school and Christian Endeavor Society, and through Decision Day, etc., but even yet we come far short of our privilege, our duty. In almost every part of every religious service, whether it be Scripture-reading, prayer, song, or sermon, adults are almost wholly in mind. Revivals in which hoary-headed sinners are converted, transgressors who have reached or passed through middle life, are held in far higher esteem than those which simply gather in the ten or twelve year-olds, or those not far along in their teens. But Jesus said, rather, "Suffer the little ones to come unto me."

"Heaven lies about us in our infancy."  
ought to be so, and may be so, that our

children shall almost literally step from the cradle into the kingdom. Surely, wandering long and far, with highest interests in continual jeopardy and eternal loss easily possible, with return not likely, a mere perhaps—surely this is not God's way. Rather we owe it to the young to take them early by the hand, to point out the path of life, and lead them lovingly into the Christian way. Whatever truth the doctrine of total depravity may contain, and the necessity of a new birth, it yet remains that, in an important sense, it is as natural and easy for a child, under favorable circumstances, to begin a life of love and obedience and service—that is, to master the A B C of right living, as it is to walk or talk, to read or write. Practically our children are as clay in our hands, to be molded into any form, be it fair or unsightly. Let us rather say, as plants to be trained, trellised, protected from frost and blight and pests such as child flesh is heir to. Jesus said significantly, "Suffer the little children to come unto me, and forbid them not." They are ready and willing—that is, see that you do not block the way. Therefore, parents, individual Christian men and women, pastors, and churches, have no higher calling, no more exigent business on hand, summer and winter, and all the year round, than to see that, so far as possible, all hindrances shall be removed, and every help possible shall be supplied. Besides, every church should maintain a standing committee for this express purpose, composed of the choicest men and women, the very pick of the flock.

Our denomination is derelict beyond many at this point. We have something to learn from Episcopalians, Lutherans, and even Roman Catholics, who keep on hand classes of catechumens in training for confirmation time, though their process may be much too purely intellectual in character. Every pastor ought to be watching constantly, and every now and then gather the most hopeful cases for instruction designed to lead up to a public confession of Christ.

And, further, when the supreme choice appears really to have been made, and the child has been received to church fellowship, it is by no means to be imagined that the end has been reached, but, instead, that only a hopeful beginning has been made, and so unremitting watch, care, wisest Christian nurture must be bestowed. After being born, the "little one" is to be kept alive by systematic feeding and exercise. Ostrich culture is cruel and wicked. If neglected, the new-born are at least as likely to die as to live. First of all, good examples are needed for their guidance and inspiration, in the home every day and elsewhere. Nor is there a nobler motive to a life truly Christian for the older members than that of thereby strengthening the youthful disciples. Beware lest you cause one of these little ones to stumble! They are to be helped to become disciples and servants, toilers, to seek not merely to be saved, or to be happy, but, rather, to be useful, to



serve God and man. They must be aided to find and fill each one a place in church life and work. Satan still finds some mischief for idle hands to do. Let responsibilities be put upon their shoulders. In the choir, the Sunday-school, the prayer-meeting, to serve as ushers, collectors, deacons, clerks, trustees, etc., to serve on committees. It is a mistake to keep every thing in the hands of the older half of the membership. Rather systematically work in the new recruits.

In particular, teach the young to begin early to bear their full share of the financial burdens, whether for home expenses or benevolences. From the cradle instruct them to earn, save, keep in store, the pennies, nickels, dimes, dollars, and in part in order that they may have whereof they may bestow. Teach them the duty of stewardship. Too often the children are esteemed financial nobodies, nonentities. But childhood and youth are the chosen time in which to begin to form all good habits, with systematic giving prominent among the virtues. If this is omitted from early life, it is almost certain never to appear, at least to have an existence but stunted and sickly at the best.



#### THE CABIN IN THE WOODS IN AUGUST.

When Mrs. Root and I reached here, July 27, we found every thing almost out of sight in the weeds and tall grass. When I was last here, about April 1, I hoed around all the fruit-trees, cut down every burdock, mullein, and thistle I could find, and had things in pretty good shape; but after about four months' absence, nature had done a pile of "asserting." Partly under the doorstep, and right in front of the door (see page 658, June 15), a huge burdock had shot up until it was higher than I could reach, by actual measure; and as it almost closed up the doorway my first job was to get it down. It took several smart blows with the ax to make it "let go." I am sure there was no sign of a burdock at that spot when I left in April; but now, "fowls" might easily have "roosted in its branches." I mention this to show the wonderful fertility of the soil around here, especially when newly reclaimed from the woods. After the burdock "tree" tumbled over I noticed the red-cheeked Hale's Early peaches right before the door. A part of the fruit should have been thinned off in June; but they are now so nearly ripe we have decided to do the "thinning" as they begin to get mellow. Close around the back door, down among the weeds, I found my eight currant-bushes, all different. They were bought of Storrs & Harrison, Painesville, O., in April, 1903. A little nervously I parted the grass and

weeds around the one near the kitchen door (Fay's prolific), and as I did so I called out: "O Sue! just look here at our treasures."

Notwithstanding the weeds, the little bush was fairly loaded with the largest and most luscious currants I ever saw. The next bush is Pomona, not so large a berry as the Fay, but the bunches are large and long, and the lower part of the bush was one huge cluster of dead-ripe currants. Then came the White Grape, also a mass of fruit, and much sweeter than any of the red currants. The Cherry currant is so much like the Fay I can hardly tell one from the other. Versailles is small, but has a peculiar flavor that makes it a general favorite. Wilder and Red Victoria are two splendid currants; and last but not least, if you have a currant garden\* you want Black Victoria. I know a good many say they can not bear *black* currants; but it is because they have not acquired a taste for them. If you could sample one of Mrs. Root's English-currant puddings I think you would agree with us that they are a splendid fruit. Ours here are the largest and finest I ever saw. From one small plant set two years ago we had enough fruit this year to can. But this is a berry region around here. As usual our woods are full of raspberries. You can hear the happy voices of women and children almost daily as they come in crowds, and go home with filled pails, and I am always glad to welcome them, as it seems too bad to have such luscious fruit ripen and fall on the ground for want of some one to pick it. Red-raspberry shortcake, made with buttermilk that we get of the neighbors, I think is a little ahead of even strawberry shortcake, so much talked about. It is true we are miles away from the butcher's; but our neighbors grow string beans and sweet corn for the canning-factories, in Traverse City, and the former are certainly the best I ever ate. The factory furnishes the seed. The growers don't know the name. A single lake trout has supplied us for the last three days; and as Mrs. Root cooks it I think it quite equal to the famed black bass.

It is quite the fashion around here for the farmers to take "a day off," and all hands, big and little, "go huckleberrying," and so we have had plenty of the latter berries also.

Our expenses here in the cabin are not as much for a whole week as they would be for one day in a "resort hotel," yet our bill of fare is, to my notion, away ahead of any thing I ever found at any hotel.

The paths Mrs. Root and I made through the woods last fall in different directions to the different neighbors, we found considerably grown up, clogged with fallen dead branches, etc. Last evening we had quite

\*I find currants, especially the improved red ones, a delicious substitute for lemons in hot weather. When I am tired and thirsty I greatly enjoy sitting on the soft grass beside a bush and picking cluster after cluster until I am refreshed and satisfied with something tart. It is cheaper, and incomparably more wholesome than any artificial acid to be bought at the soda-fountains, or in the shape of any other "soft drinks" that cost money.

a tramp after supper over to our friends the Hilberts. As it was between three and four miles, up hill and down, mostly through the woods, Mrs. R. got pretty tired, so I went ahead and cleared the pathway for her. Had we both been in our "teens," instead of past 60, it might have been very pretty to tell her it was going to be my happy privilege through life thus to make *her* pathway a little easier for the tired feet, and may be I *did* say something of the kind to her over forty years ago. But, dear reader, I can say it *now* with twofold more emphasis than I said it then, and God intended it should be so when he pronounced his blessing on the marriage relation.

Coming through the woods to the cabin, when it was almost dark, reminded me of the words in that Gospel Hymn:

Let us find our sweetest comfort  
In the blessings of to-day,  
With a patient hand removing  
All the briars from the way.

Don't give me too much credit, friends, for I well knew, when I was at work at it, that Mrs. R. would, in a similar way, pay me back many fold for all my pains, and I suspect that is about the way with the wives and mothers the world over. Divorces would never be heard of after the children are grown up if the Holy Spirit were allowed to lead in the home.

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give unto your bosom. For with the same measure that ye mete withal it shall be measured to you again.

This same idea may be carried out with our neighbors, only it will, of course, require more faith, perhaps more self-sacrifice.

We have no automobile here, and, for that matter, no horse and buggy. We must do our visiting and going to church and Sunday-school on foot. The question came up, "Who are our neighbors?" I answered it: "Everybody — at least everybody within walking distance in any direction." And, dear friends, we have found much happiness in getting acquainted, and so have found some of the kindest and *best* neighbors anybody ever heard of.

On p. 658 (June 15), just above the front door to the right you will notice a cluster of small maples. Here is where our hammock swings, and it not only affords a beautiful view of Grand Traverse Bay, but during the hottest day in July or August you are sure to find a cooling breeze up there to fan you to sleep when you are tired and need rest. If it doesn't make you think, "Praise God, from whom all blessings flow," you are in a bad "frame of mind."

Basswoods are now just in full bloom — just about a month later than in Ohio. This morning the whole woods was fairly perfumed with them, and the bees were making such an uproar I could find a basswood-tree every time by pushing out into the bushes where I heard their loud humming.

By the aid of the hoe, scythe, sickle, and lawn-mower, we have made the cabin once more presentable; and *we* think that it and

surroundings are not only "a thing of beauty" but it looks as if it might be "a joy for ever" to somebody. Every married couple ought, at least once in their lives, to start and build up a "home in the woods."



#### THE IMPORTANCE OF TILE DRAINAGE.

Thousands of dollars, and I don't know but I might safely say millions, are lost, wasted, and thrown away every year for lack of a little investment in tile drainage. As you ride over the country and look over the fields you can see the yellow spots, and the spots where there is no crop at all, just because of a surplus of water. It is true you may not get your money back on the first crop (this sometimes happens, however), but farmers generally go through the motions of raising a crop year after year all their lives, without getting even half a yield where they might have had a full stand all over the field just by getting rid of the surplus water; and when it is once done it is done for a lifetime or more.

A very valuable bulletin has just been issued by the New Hampshire Experiment Station in regard to tile drainage. From it I copy the general summary below. My experience is that it is orthodox in every particular.

Pole, slab, and stone drains have been superseded by the modern tile drains. The use of tile is becoming more and more extended every year.

The effects of tile drainage are that the surplus water is removed from the soil; the soil is better ventilated; roots are given more room; the soil is made warmer; the available moisture is increased.

The size of tile will depend upon the fall and the area drained. For mains, 4-inch, and for laterals 3-inch will usually be found most satisfactory and economical. In laying drains get all the fall possible.

For clay soils drains should be about 2½ feet deep and 35 to 50 feet apart. For porous sandy soils they may be 3½ feet deep and 60 to 100 feet apart.

Select the lowest ground for the main. Have as few outlets as possible. Put in laterals through the wettest places first.

If the fall is slight, have it accurately determined by a competent surveyor. In other cases the ordinary carpenter's or home-made water-level may be used.

Begin digging at the outlet. Make the ditch just wide enough for the man to work in. Be sure the bottom is properly graded so that no low places are left in it.

Round tile — hard burned, free from lime, straight, smooth on the inside, and with ends square cut, are the best.

Place very hard-burned tile next to the outlet. Use Y's for making all connections of laterals with mains.

In filling the ditch, cover the tile first with loose dirt or sand. The plow may then be used to advantage.

The classes of land in New Hampshire needing drainage are, (1) meadow lands; (2) gently rolling tillable lands; (3) lowlands around swamps or lakes; (4) lowlands adjacent to salt water.

Thorough drainage on most lands will cost \$35 to \$40 per acre. Many lands can be greatly benefited for \$15 or \$20 per acre.

Those wishing the bulletin should address the New Hampshire Experiment Station, Durham, N. H. I think it might also pay you to have our book, *Tile Drainage*, 40 cts.



### THE CONSTRUCTION OF SILOS.

The above is the title of a beautiful little bulletin of 41 pages, issued by the Illinois Experiment Station, Urbana, Ill. It is beautifully illustrated on almost every page with photos of silos in actual use, and must be of immense benefit to any progressive farmer. I clip from the summary the following:

**ESSENTIALS OF A SILO.**—To preserve the silage perfectly the silo wall must be rigid and air tight.

**LOCATION.**—That the labor of feeding may be reduced to the minimum, the silo should be placed as near the manger as possible.

**FORM OF SILO.**—It is practically impossible to construct a square wood silo with rigid walls; and as silage usually spoils more or less in the corners, it is perfectly clear that the round silo is the only proper form.

**PROPORTION AND CAPACITY.**—The deeper the silo the greater the pressure and the more compactly will the silage be pressed together. To be well proportioned, the height should not be more than twice the diameter.

By the way, in traveling through the country on the auto or in the cars I have often remarked that, whenever you see a nice farm, there is a good silo among the buildings; and whenever you see a nice up-to-date silo you will see a beautiful farm well kept up. If you want the bulletin, address as above.

### SWEET CLOVER—WILL FARM STOCK EAT IT?

There are still not only individuals but some agricultural papers that answer correspondents to the effect that no farm stock will eat sweet clover. See the following:

*Dear Sir:*—I have sown sweet clover in a small way several times, but my sheep (about 100) always eat it so close that it dies. I will try to keep the sheep off. Dutch, Va., July 3. W. C. JACKSON.



## HERE'S A PAROID ROOF, "The Roof That Lasts."

The Monmouth Poultry Farm, Freneau, N. J., one of the largest in the country, sends a photograph (see above) showing their Paroid roofs. They like it and so do thousands of poultrymen, the large ones and the small ones, because they found that for roofing and siding, nothing in the world equals

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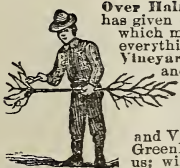
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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

**WANTED.**—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods. O. H. HYATT, Shenandoah, Iowa.

**WANTED.**—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

**WANTED.**—To exchange Barnes combination saw, almost good as new, for best alfalfa honey—comb or extracted. W. W. MCNEAL, Wheelersburg, O.

**WANTED.**—To buy colonies of bees. State price and condition. F. H. FARMER, 182 Friend St., Boston, Mass.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Honey in any quantity. State price, quantity, and quality. JUDSON HEARD, 110 South Forsyth St., Atlanta, Ga.

**WANTED.**—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes. H. E. CROWTHER, No. Kingsville, Ohio.

**WANTED.**—To correspond with parties in New England States or elsewhere where there are prospects of a large crop of winter apples. Also a good typewriter for sale or exchange for honey. F. W. DEAN, New Milford, Pa.

**WANTED.**—Every bee-keeper to act as subscription agent for the *Rural Bee-keeper* at the coming State and county fairs. Write for particulars. W. H. PUTNAM, River Falls, Wis.

**WANTED.**—To exchange one 288-egg and one 120-egg size Von Culin incubator for honey or cash. Also mated queens at 20 cts.; 30 hybrid queens at 15 cts.; full colonies of bees in eight-frame hives—gable covers, Danz. bottom, \$4.50 this fall—young Italian queens and as many bees as can be safely shipped. A. H. KANAGY, Milroy, Pa.

**WANTED.**—A renter for a water-power bee-hive factory; complete equipment. W. H. PUTNAM, River Falls, Wis.

**WANTED.**—Complete issues of the *American Bee Journal* for the years 1881 to 1892 inclusive; also the years 1895 to 1899 inclusive. Parties having same will please state lowest price at which they can furnish them. A. L. BOYDEN, Medina, Ohio.

**WANTED.**—To lease 300 or more colonies of bees in Cuba, by three practical bee-keepers; references Address J. B. STODDARD, Encinitas, Cal.

**WANTED.**—Bees on shares for this winter; prefer Islands or Mexico. References: The A. I. Root Co., Medina, O., or O. P. Hyde, Floresville, Texas. MAURICE C. ENGLE, Floresville, Texas.

**WANTED.**—Photos for GLEANINGS prize contest. Closes Sept. 1. For full particulars see Special Notices. THE A. I. ROOT COMPANY, Medina, O.

**WANTED.**—Agents for GLEANINGS at all county and State fairs. \$20.00 in cash prizes for largest lists obtained, besides our regular liberal commissions for each subscriber secured. See advertisement on page 848. THE A. I. ROOT COMPANY, Medina, Ohio.

**WANTED.**—To exchange one Edison phonograph with fifty records, for bees; cost \$50.00; guaranteed all right. Write what you have to offer. F. W. SAMPSON, Littleville, Mass.

## Addresses Wanted.

**WANTED.**—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. \$1.00 per month; \$10.00 per year. Daily except Monday.

**WANTED.**—Names of all bee-keepers and others who will join our carload of bee-keepers to attend the National Bee-keepers' Association, at San Antonio, Texas, Oct. 30. Excursion rates from Chicago to San Antonio and return over the Rock Island, \$20.00; St. Paul to San Antonio and return via Chicago, \$27.00. For further particulars address

W. H. PUTNAM, River Falls, Wis.

## Help Wanted.

**WANTED.**—A bee-keeper to take charge of two bee-ranches on shares. A good proposition for right man. LESLIE BURR, Casanovia, Havana, Cuba.

## For Sale.

**FOR SALE.**—White-clover comb and extracted honey; new crop. R. S. CHAPIN, Marion, Mich.

**FOR SALE.**—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. JNO. M. WHEELER, Winchester, Ky.

**FOR SALE.**—Full colonies of leather-colored Italian bees at \$4.00 per colony. F. A. GRAY, Redwood Falls, Minn.

**FOR SALE.**—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

**FOR SALE.**—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere. E. H. DEWEY, Great Barrington, Mass.

**FOR SALE.**—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each. A. G. WOODMAN, Grand Rapids, Mich.

**FOR SALE.**—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, \$4.00 per gross; less quantities, \$4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN, 82-84 Murray St., New York City.

**FOR SALE.**—My apiary consisting of 98 colonies, 250 extra hives, 200 extra supers, and smaller supplies, worth \$1100, for \$800; good location. E. F. READ, Arvada, Colo.

**FOR SALE.**—100 two-frame nuclei of Italian bees with warranted purely mated five-barred Italian queen, \$1.65 each; on Danzenbaker frames. This is a bargain. W. L. WOMBLE, Raleigh, N. C.

**FOR SALE.**—Italian and red-clover queens; 40c each; \$4.00 per dozen. Safe arrival: will continue until Nov. 15. R. O. COX, Fort Deposit, Ala.

**FOR SALE.**—Comb-foundation business located in Denver. Fine situation with full equipment for the Weed process. Price \$1000. A most excellent opening for the right party. If interested write for full particulars. THE A. I. ROOT CO., Medina, Ohio.